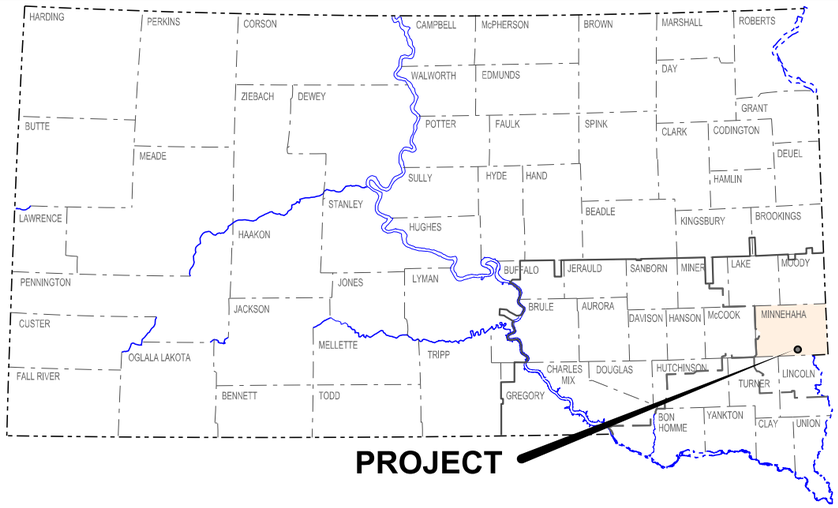


STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

PROJECT 229N–288
10TH ST OVER INTERSTATE 229
MINNEHAHA COUNTY

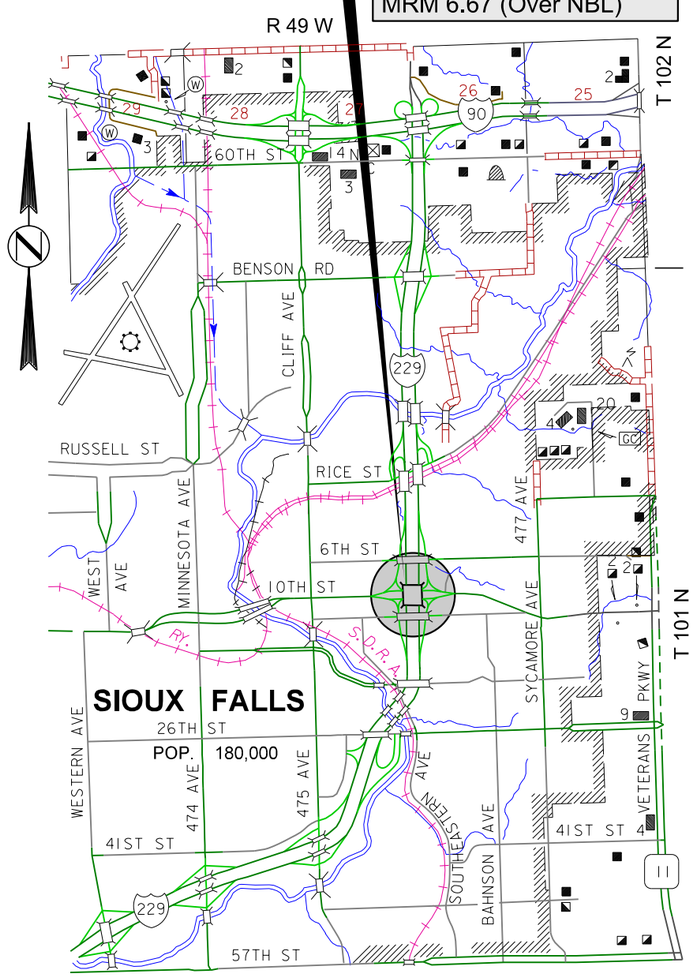
BRIDGE CONCRETE RAIL REPAIR
PCN I4YR

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	229N-288	1	20

Plotting Date: 02/13/2018

INDEX OF SHEETS

STRUCTURE 50-219-208
Cont. Concrete Bridge
102'-0"=0.019 Mile
MRM 6.67 (Over NBL)



STORM WATER PERMIT
(None required)

I229N ADT (2016) 15,963
I229S ADT (2016) 15,090
10TH ST ADT (2016) 60,000

ESTIMATE OF QUANTITIES & ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	229N-288	2	20

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
633E6005	Pavement Marking Masking, 5"	2,000	Ft
634E0110	Traffic Control Signs	316.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0285	Type 3 Barricade, 8' Double Sided	1	Each
634E0330	Temporary Raised Pavement Markers	1,000	Ft
634E0380	Tubular Marker	40	Each
634E0390	Replace Tubular Marker	20	Each
634E0525	Linear Delineation System Panel, Barrier Mounted	10	Each
634E0600	4" Temporary Pavement Marking Tape Type I	2,000	Ft
634E0640	Temporary Pavement Marking	4,000	Ft
634E1002	Detour Signing	308.0	SqFt
634E1215	Contractor Furnished Portable Changeable Message Sign	1	Each
634E2025	Longitudinal Pedestrian Barrier	25	Ft

STRUCTURE 50-219-208

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E7800	Remove Chain Link Fence for Reset	42	Ft
460E0070	Class A45 Concrete, Bridge Repair	0.9	CuYd
460E0200	Special Surface Finish	69	SqFt
460E0300	Breakout Structural Concrete	0.9	CuYd
460E0600	Housing and Heating Concrete	0.9	CuYd
480E0200	Epoxy Coated Reinforcing Steel	146	Lb
480E0505	No. 5 Rebar Splice	10	Each
621E0520	Reset Chain Link Fence	42	Ft
621E0600	Chain Link Fence Post	1	Each

ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

COMMITMENT C: WATER SOURCE

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment before entering South Dakota to reduce the risk of invasive species introduction into the project vicinity.

The Contractor shall not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

Action Taken/Required:

The Contractor shall obtain the necessary permits from the regulatory agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE) prior to executing water extraction activities.

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor shall furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the Public ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) shall not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements shall apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the Public ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating No Dumping Allowed.
2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

COMMITMENT H: WASTE DISPOSAL SITE (CONTINUED)

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

Cost associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates and signs), and reclamation of the waste disposal site(s) shall be incidental to the various contract items.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor shall arrange and pay for a cultural resource survey and/or records search. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). SDDOT will submit the information to the appropriate SHPO/THPO. Allow 30 Days from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

MAINTENANCE OF TRAFFIC

Sufficient traffic control devices have been included in these plans to sign one workspace on 10th street and one work space on I-229.

A type 3 Barricade shall be installed at the downstream end of shifting taper, ahead of the work area as detailed on these plans.

Ramp traffic shall be maintained at all times.

Double lane shift shall be used in the northbound lanes of I-229 at exit 6 as shown in detail A.

Work to be conducted during daytime hours only.

Cost to install and remove temporary traffic control devices shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

TEMPORARY PAVEMENT MARKING

Temporary pavement marking on lane shift tapers shall consist of temporary flexible vertical markers (tabs) or raised pavement markers.

Temporary raised pavement markers shall be installed at the tangent section to divide the right I-229 lane and the shoulder to maintain two lane traffic operations.

The raised pavement markers shall be attached to the roadway surface with a bituminous adhesive capable of being removed from the roadway.

The Contractor shall remove and dispose of temporary raised pavement markers up on the completion of the project.

Cost for furnishing, installing, maintaining, and removing markers and bituminous adhesive shall be included in the contract unit price per foot for Raised Pavement Markers.

TEMPORARY PAVEMENT MARKING TAPE, TYPE I

Temporary pavement marking tape, Type I used for lane shifts shall be Stamark 710/711 or equivalent as approved by the Engineer.

PAVEMENT MARKING MASKING

Conflicting pavement markings for lane shifts shall be covered with a temporary pavement marking masking tape. The Pavement Marking Masking Tape shall be Stamark A715 or equivalent to be approved by the Engineer.

Payment for all work associated with applying and removing the pavement marking masking shall be incidental to the contract unit price per foot for Pavement Marking Masking, 5”.

Any damage to the existing pavement markings due to the installation or removal of the pavement marking masking tape shall be repaired to the satisfaction of the Engineer at no cost to the State.

PROTECTING DROP INLETS

When utilizing the shoulders to maintain traffic, the Contractor shall shift traffic away from the drop inlets where ever possible. If it is not possible to shift traffic away from the drop inlets, the Contractor shall protect the inlets by covering them with ½” thick plate steel.

The plate steel shall be securely fastened to the concrete pavement adjacent to the drop inlet such that it does not move under traffic.

Cost for the steel plate and anchors shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

INCIDENTS

An incident is an emergency road user occurrence, a natural disaster, or other unplanned event that affects or impedes the normal flow of traffic such as an accident, hazardous materials spill, or similar event.

The Contractor shall set up a meeting prior to start of work to plan and coordinate responses to an incident. The Contractor will invite the Department of Transportation, the South Dakota Highway Patrol, and local emergency response entities to the meeting. The Engineer will conduct the meeting.

The Contractor will assist to maintain traffic as required by these plan notes and as agreed to at the meeting.

The Contractor will be required to modify messages on portable changeable message signs or relocate portable changeable message signs. The Contractor may be asked to provide flaggers to direct or detour of traffic. The Contractor should be prepared to relocate advance warning signs if determined to be necessary for a major traffic incident lasting for more than two hours. Ground mounted advance warning signs may be covered and additional portable warning signs provided.

No additional payment will be made for the modification of portable changeable message sign messages or the relocation of portable changeable message signs. Cost for flagging shall be paid at the contract unit price per Hour for Flagging. Cost for the relocation of an advanced warning sign due to an incident shall be 50% of the designated sign rate as per Section 634.5 F. Cost for additional signs shall be paid at the contract unit bid price per square foot for Traffic Control Signs.

LINEAR DELINEATION SYSTEM PANEL, BARRIER MOUNTED

A linear delineation system (LDS) panel shall be attached to barrier section. The color shall be the same as the nearest pavement marking, white along outside edgelines or yellow for the left side on one way traffic sections. The LDS shall be 34 inches long and 6 inches in height and be constructed of aluminum formed into a shape to provide retroreflective properties across a wide range of angles. It shall be sheeted with sheeting meeting the requirements of ASTM D4956 Type XI.

The panels shall be installed on the retaining walls at 3.5 foot height with 20 foot spacing. The bottom of the panel shall be 3.5 foot off the ground when measured along the length. Installation shall be as per the manufacturer’s recommendations using stainless steel inserts and bolts. This will allow for easy removal for replacement of damaged panels or to replace with an alternate color.

The Contractor shall furnish and install panels along the barrier if any panels are missing from the retaining walls. Replacement of damaged linear delineation system panels shall be furnished and replaced by the Contractor.

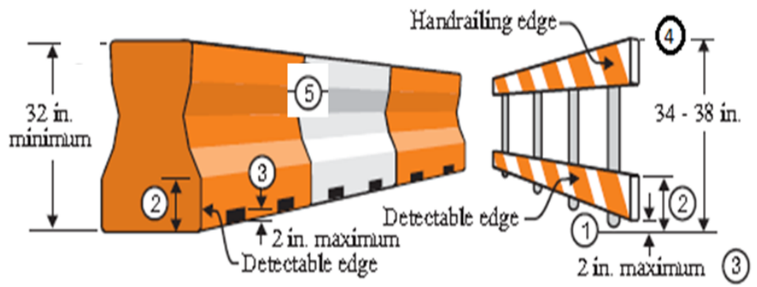
Costs associated with furnishing, installing, and replacing the LDS shall be included in the contract unit price per each for Linear Delineation System Panel, Barrier Mounted.

LONGITUDINAL PEDESTRIAN BARRIER

Longitudinal Pedestrian Barriers shall have continuous bottom and top surfaces. The lower edge of the bottom portion shall be a maximum of 2 inches above the walkway. The top edge of the bottom portion shall be a minimum of 8 inches above the walkway. The top of the top portion shall be a minimum of 32 inches above the walkway. The top surface shall be smooth to allow safe hand trailing

When exposed to vehicular traffic, Longitudinal Pedestrian Barrier shall be crashworthy, and the bottom and top surfaces of the traffic side of devices shall have retroreflective sheeting or delineation for improved nighttime visibility.

Barricade rail supports may not extend into the pedestrian walkway more than 4 inches from the face of the barricade.



Longitudinal Pedestrian Barrier Longitudinal Pedestrian Barricade

The top edge of the bottom portion shall be a minimum of 8 inches above the walkway.

Devices shall not block water drainage from the walkway. A gap height or opening from the walkway surface up to a maximum of 2 inches in height is allowed for drainage purposes.

The top edge of the Longitudinal Pedestrian Barricade is to be used as a guiderail to provide visual and tactile guidance to pedestrians along a designated route. The top surface should have a minimum width of 0.5 inches to allow the hand to feel the surface. The surface should be smooth and free of any sharp or abrasive elements to allow safe hand trailing.

Longitudinal Pedestrian Barrier used to provide positive protection from traffic to pedestrians should be crashworthy.

When either device is combined in a series, the maximum gap between devices that do not interlock shall be 1 inch. Joints between devices that do interlock should be closed and flush to prevent canes or small wheels from being trapped and to facilitate safe hand trailing.

When used as a sidewalk closure mechanism, Longitudinal Pedestrian Barricade must run the entire width of the sidewalk.

All costs associated with furnishing, installing and, removing longitudinal pedestrian barrier shall be incidental to the contract unit price per foot for Longitudinal Pedestrian Barrier.

WIDTH RESTRICTION SIGNING

The Contractor will be required to furnish, install, maintain and remove width restriction signs.

These signs shall be covered or removed from view when not applicable.

Costs to furnish, install, maintain and remove the width restriction signs shall be included in the contract unit bid price per square foot for Detour Signing.

PORTABLE CHANGEABLE MESSAGE SIGN BOARDS

One portable changeable message sign (PCMS) is included for use on the project to supplement warning signs or for incident management.

Portable Changeable Message Sign (PCMS) shall be placed on I-229 downstream of the exit 4 northbound entrance ramp.

The PCMS shall be used for incident management and traffic congestion.

Application message may be:

CRASH AHEAD	CONGESTION AHEAD	BE PREPARED TO STOP

Estimate

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
633E6005	Pavement Marking Masking, 5"	2,000	Ft
634E0110	Traffic Control Signs	316.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0285	Type 3 Barricade, 8' Double Sided	1	Each
634E0330	Temporary Raised Pavement Markers	1,000	Ft
634E0380	Tubular Marker	40	Each
634E0390	Replace Tubular Marker	20	Each
634E0525	Linear Delineation System Panel, Barrier Mounted	10	Each
634E0600	4" Temporary Pavement Marking Tape Type I	2,000	Ft
634E0640	Temporary Pavement Marking	4,000	Ft
634E1002	Detour Signing	308.0	SqFt
634E1215	Contractor Furnished Portable Changeable Message Sign	1	Each
634E2025	Longitudinal Pedestrian Barrier	25	Ft

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 55	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 65	2	36" x 48"	12.0	24.0
R2-6aP	FINES DOUBLE (plaque)	2	36" x 24"	6.0	12.0
R9-9	SIDEWALK CLOSED	2	24" x 12"	2.0	4.0
R9-11	SIDEWALK CLOSED AHEAD with ARROW (L or R) CROSS HERE	4	24" x 18"	3.0	12.0
W1-4b	REVERSE CURVE (two lanes shift) (L or R)	4	48" x 48"	16.0	64.0
W3-5	SPEED REDUCTION AHEAD (55 MPH)	2	48" x 48"	16.0	32.0
W12-1	DOUBLE ARROW	1	48" x 48"	16.0	16.0
W20-1	ROAD WORK AHEAD	5	48" x 48"	16.0	80.0
W20-7	FLAGGER (symbol)	1	48" x 48"	16.0	16.0
G20-2	END ROAD WORK	4	48" x 24"	8.0	32.0
		EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT			316.0

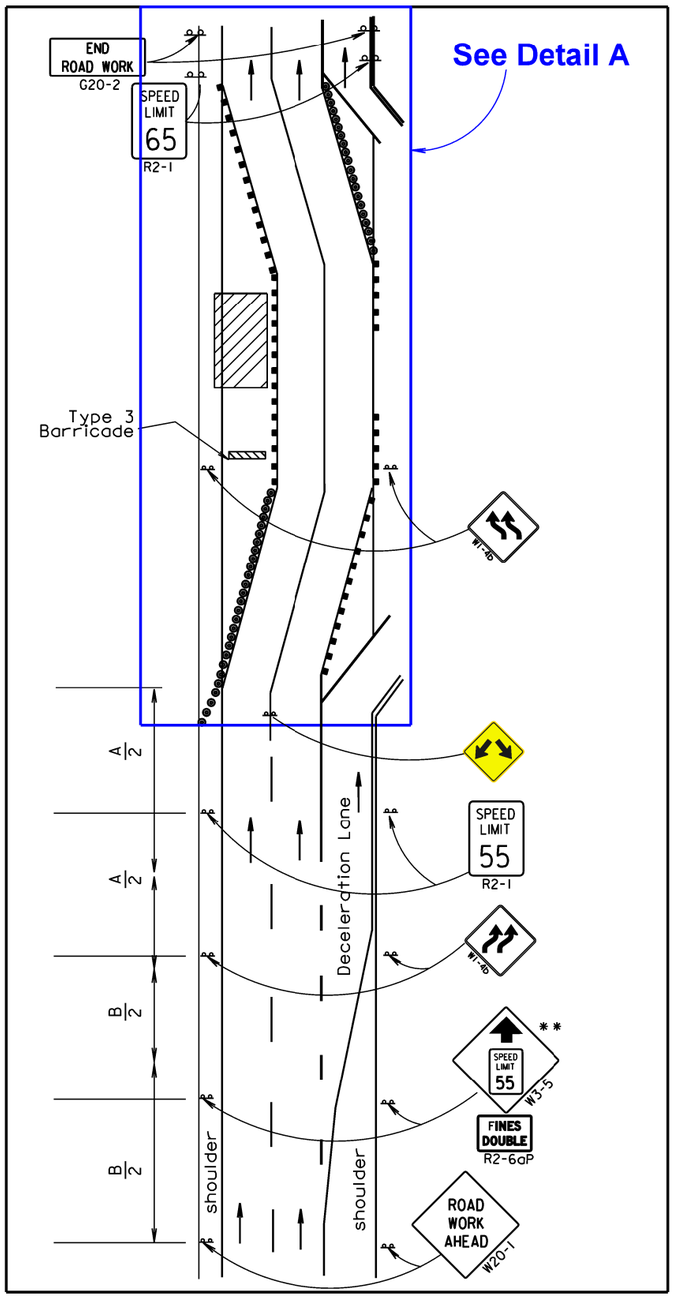
TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Double Sided	1 Each

ITEMIZED LIST FOR DETOUR SIGNING

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
SPECIAL	WIDTH RESTRICTION 10' MAX USE ALT ROUTE	3	144" x 72"	72.0	216.0
SPECIAL	VEHICLES OVER 10 FT WIDE EXIT HERE	2	120" x 48"	40.0	80.0
SPECIAL	NO VEHICLES OVER 10 FT WIDE	1	72" x 24"	12.0	12.0
		EXPRESSWAY / INTERSTATE DETOUR SIGNING SQFT			308.0

WORK SPACE WITH DUAL LANE SHIFT 0N I229
(TWO LANES MAINTAINED)



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0-30	200	180	25
35-45	350	320	25
45-50	500	600	50 *
55	750	660	50 *
	(A) (B) (C)		
60-65	1000	780	50 *
70-80	1000 1500 2640	960	50 *

* Spacing is 40' for 42" cone

Speed Limit prior to work (mph)	Buffer Length (ft)	Shifting Taper Length	Merging Taper Length	Shoulder Taper Length
65	300	0.5L	L	0.33L

- White Raised Pavement Markers
- Tubular Markers
- Reflectorized Drum
- Channelizing Device

* Use speed limit designated for the condition when workers are present in the work space. Signs shall be covered or removed when workers are not present.

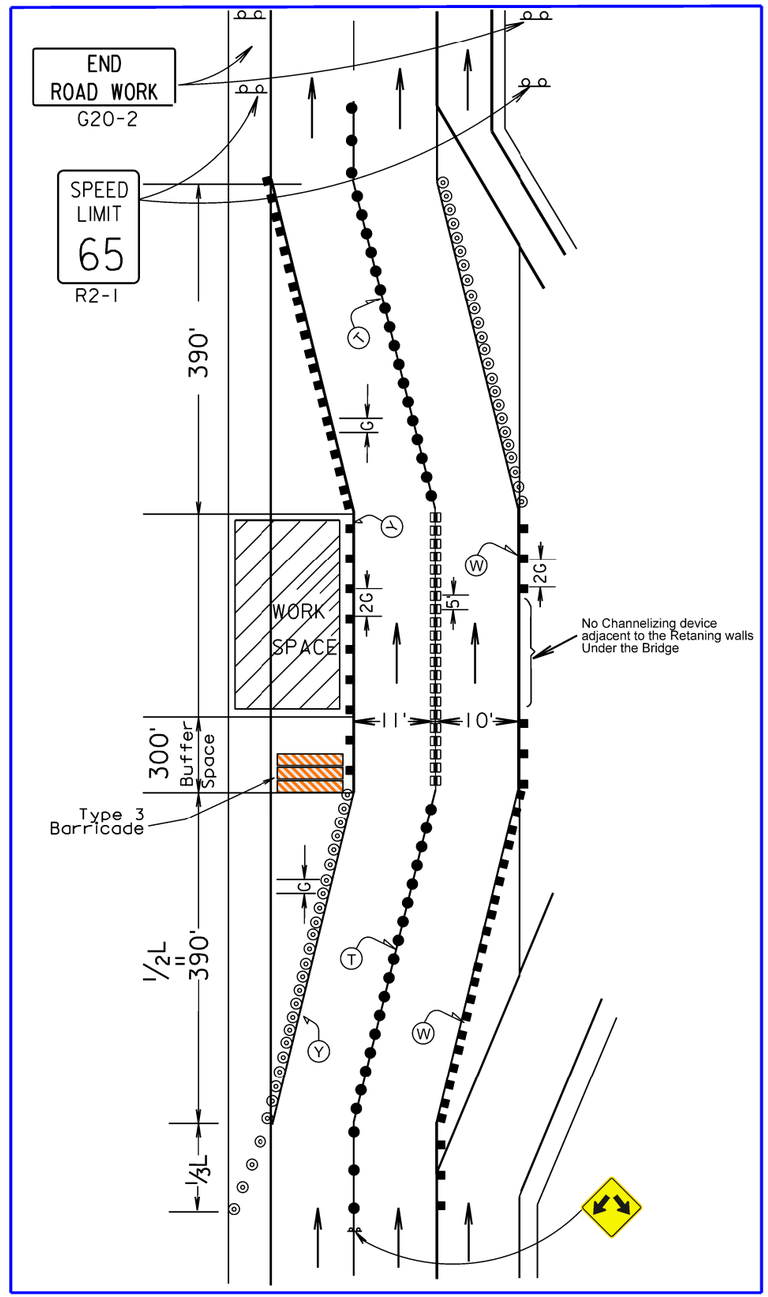
(T) 4" White Temp. Tape, Type I
(W) 4" White Temp. Pavement Marking
(Y) 4" Yellow Temp. Pavement Marking

The channelizing Device shall be 42" cones or drums

42" cones may be used in place of the drums shown on the taper if setup will not be used during night time hours

All conflicting pavement markings shall be covered or removed.

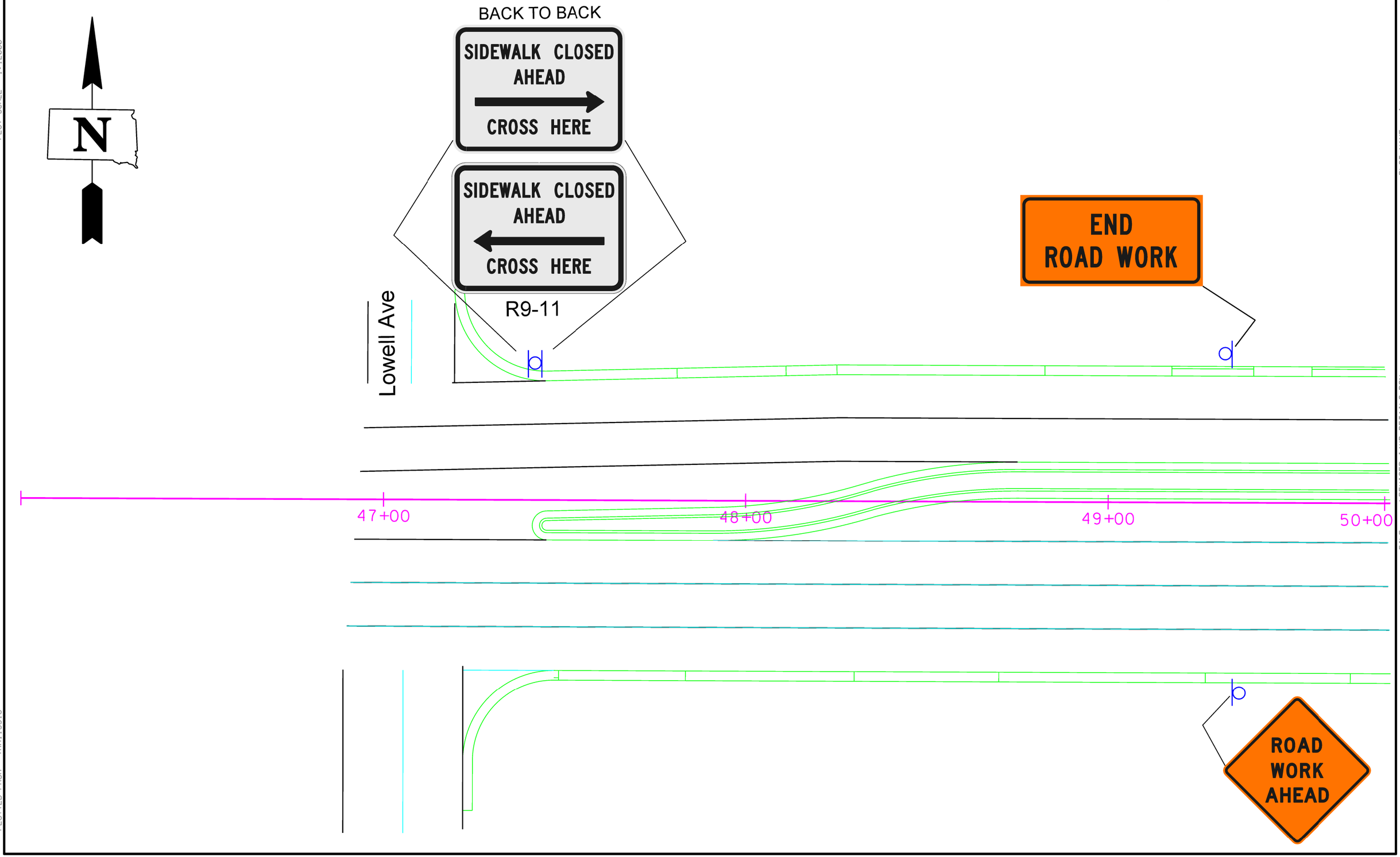
Detail A



TRAFFIC CONTROL SIGNING LAYOUT ON 10TH ST

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	229N-288	6	20

Plotting Date: 02/12/2018



PLOT SCALE - 1=12000

PLOTTED FROM - TRM113318

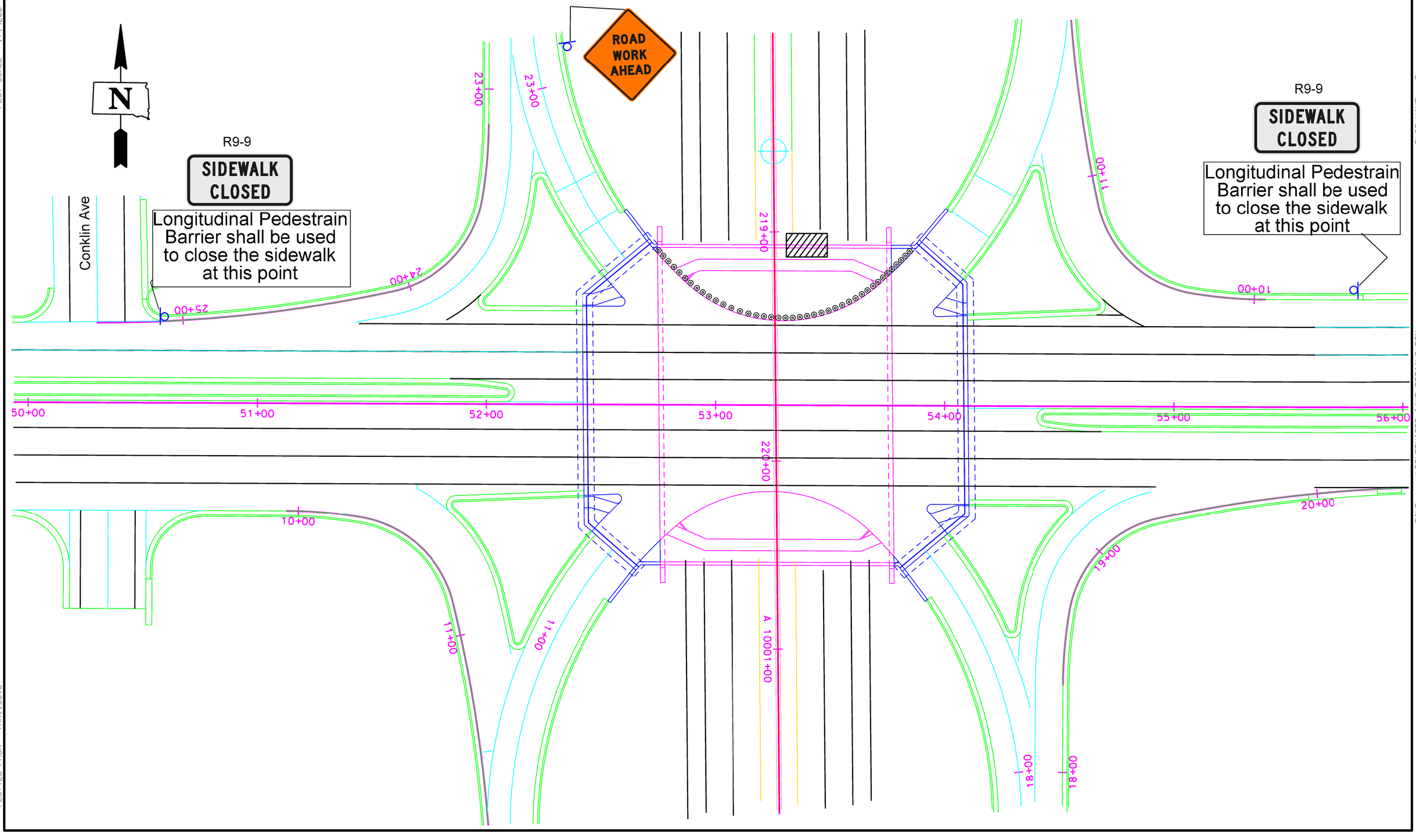
PLOT NAME - 1

FILE - ...\REVISED 14YR DETAILS.DGN

TRAFFIC CONTROL SIGNING LAYOUT ON 10TH ST

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	229N-288	7	20

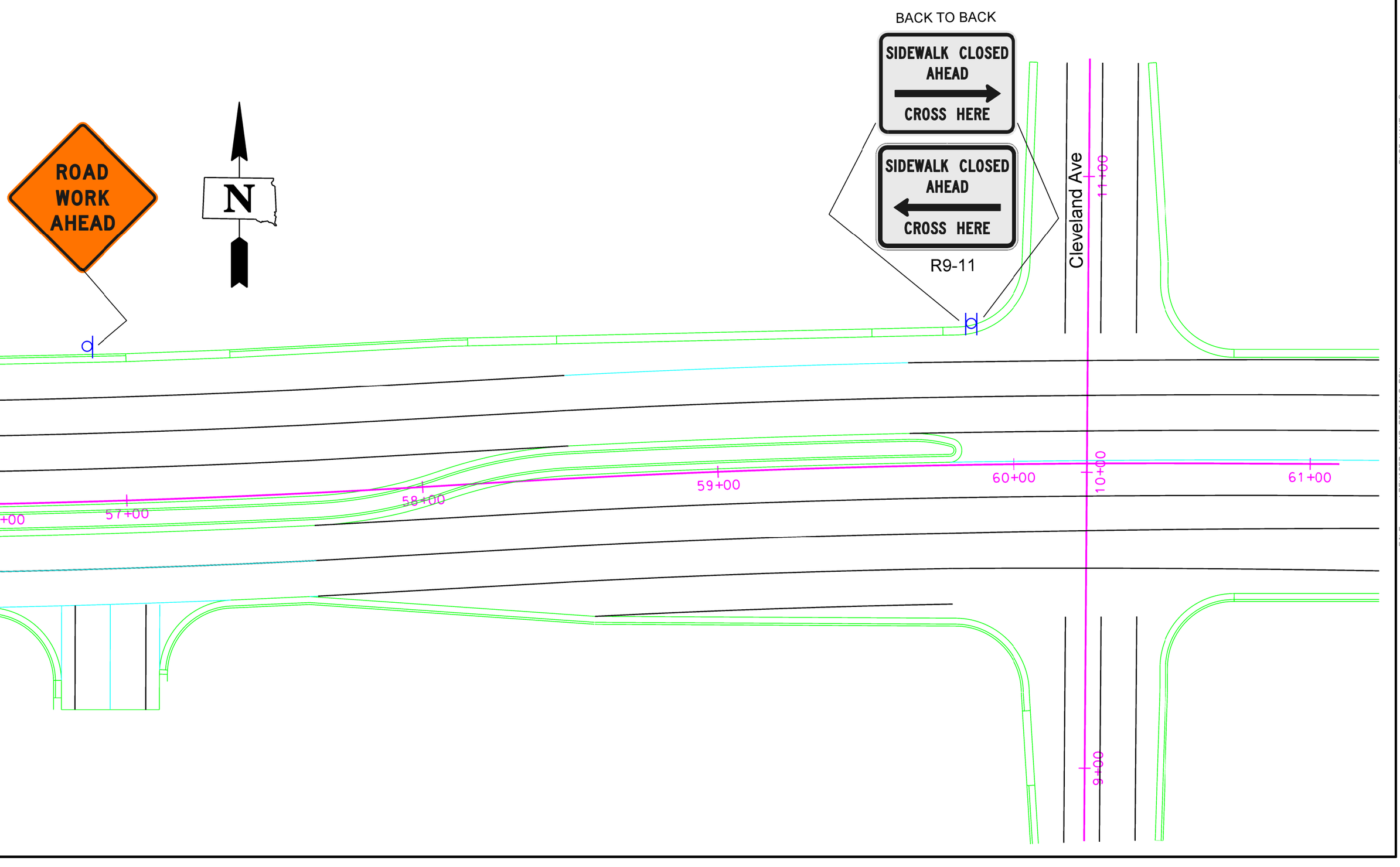
Plotting Date: 02/13/2018



TRAFFIC CONTROL SIGNING LAYOUT ON 10TH ST

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	229N-288	8	20

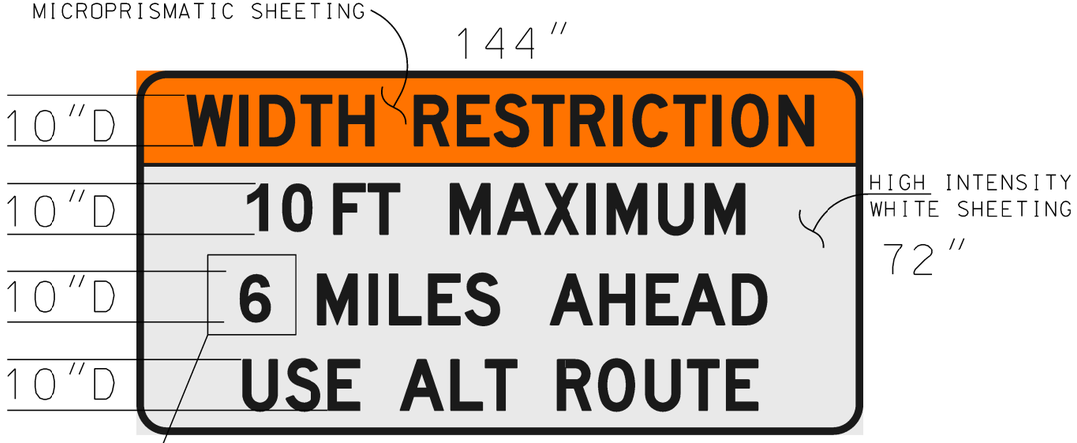
Plotting Date: 02/12/2018



SPECIAL SIGN DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	229N-288	9	20

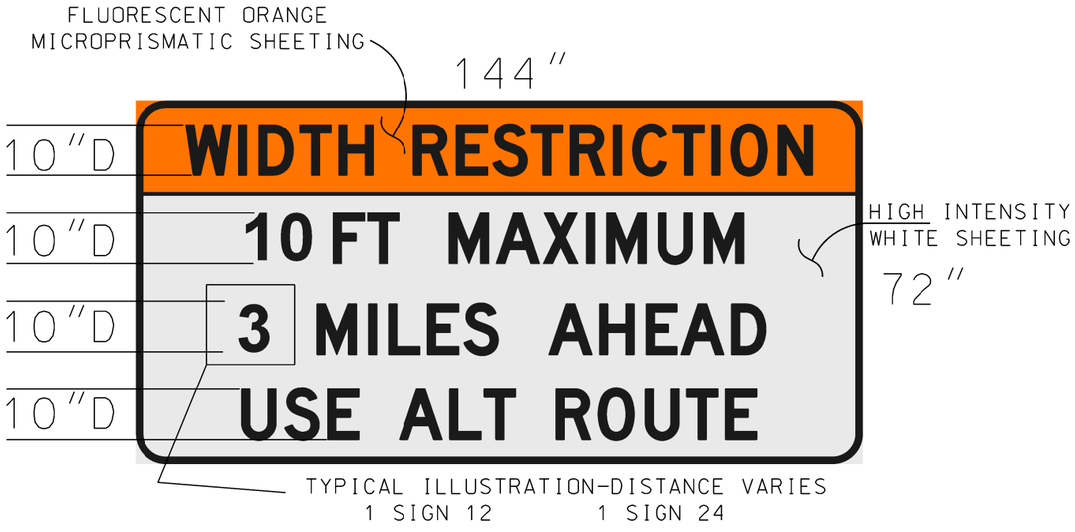
Plotting Date: 02/12/2018



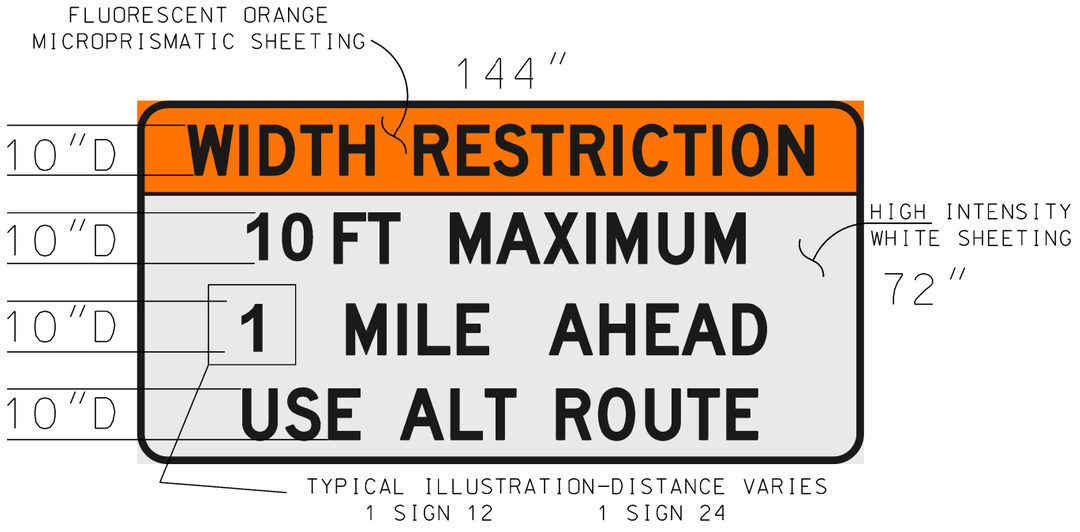
OPAQUE BLACK BORDER/LEGEND
1½″ BORDER – 9″ CORNER RADII

OPAQUE BLACK BORDER/LEGEND
ON WHITE TYPE IV SHEETING
¾″ BORDER – 3″ CORNER RADII

OPAQUE BLACK BORDER/LEGEND
ON WHITE HIGH INTENSITY SHEETING
1″ BORDER – 6″ CORNER RADII



OPAQUE BLACK BORDER/LEGEND
1½″ BORDER – 9″ CORNER RADII

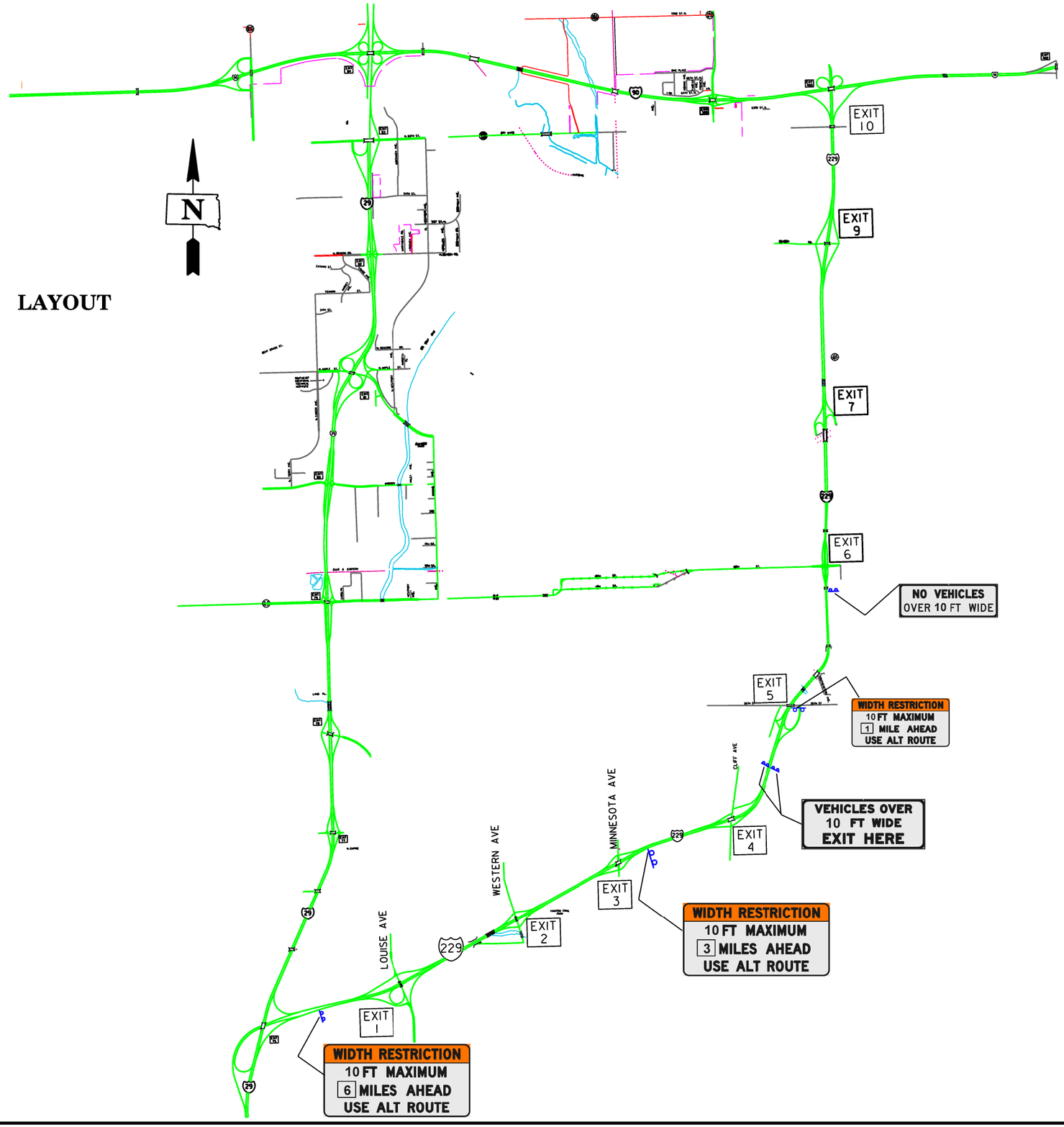


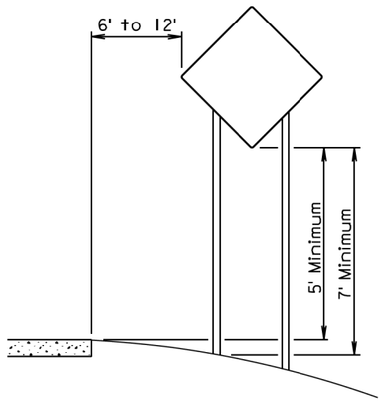
OPAQUE BLACK BORDER/LEGEND
1½″ BORDER – 9″ CORNER RADII

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	229N-288	10	20

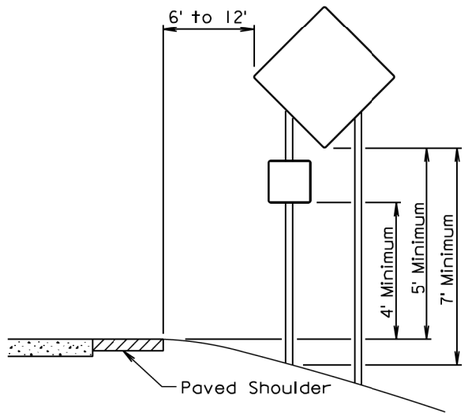
Plotting Date: 02/12/2018

WIDTH RESTRICTION LAYOUT

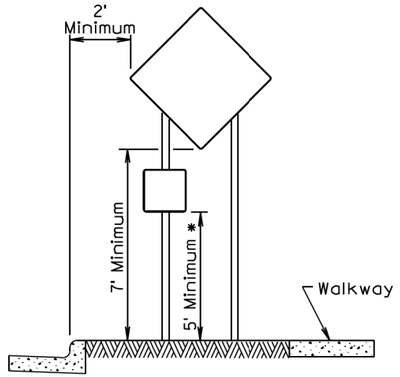




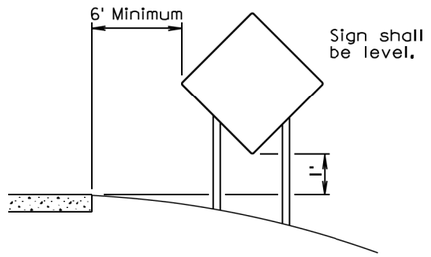
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

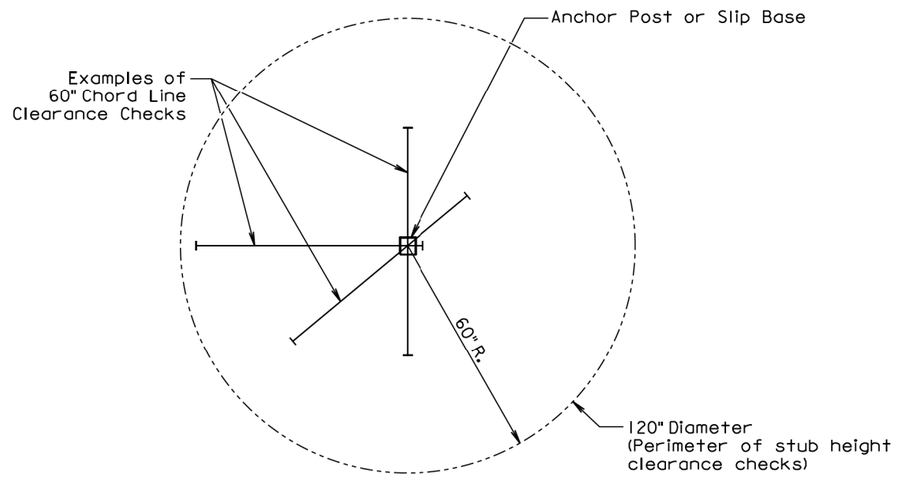


RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

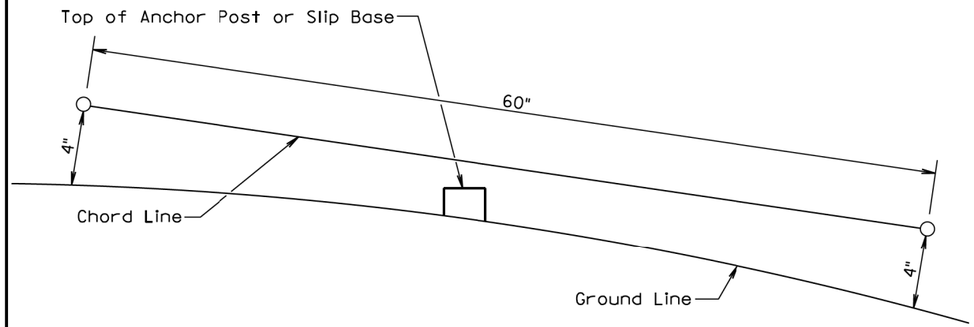
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

September 22,2014

Published Date: 1st Qtr. 2018	SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

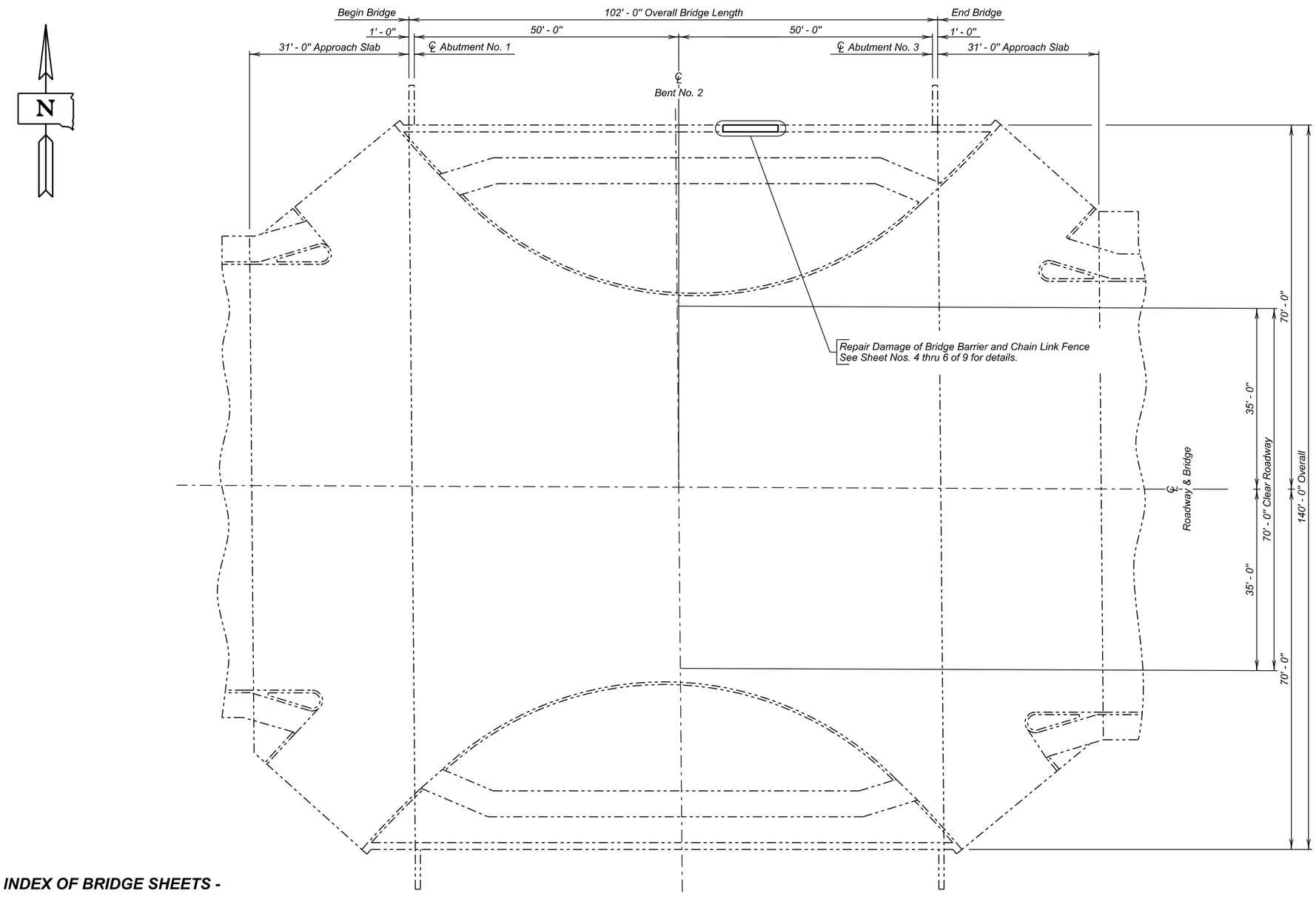
At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

Published Date: 1st Qtr. 2018	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	229N-288	12	20



INDEX OF BRIDGE SHEETS -

LAYOUT FOR UPGRADING

FOR

102' - 0" CONTINUOUS CONCRETE BRIDGE

2 - 24' - 0" ROADWAY
OVER I-229 (10TH ST.)
STR. NO. 50-219-208
PCN I4YR

0° 43' 43" R.H.F. SKEW
SEC. 15-T101N-R49W
229 N-288

MINNEHAHA COUNTY

S. D. DEPT. OF TRANSPORTATION

DECEMBER 2017

1 OF 9

DESIGNED BY	CK. DES. BY	DRAFTED BY	
TJM	JKI	KR	Steve A Johnson BRIDGE ENGINEER
MINNI4YR	I4YRRA01		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	229N-288	13	20

ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
110E7800	Remove Chain Link Fence for Reset	42	Ft
460E0070	Class A45 Concrete, Bridge Repair	0.9	CuYd
460E0200	Special Surface Finish	69	SqFt
460E0300	Breakout Structural Concrete	0.9	CuYd
460E0600	Housing and Heating Concrete	0.9	CuYd
480E0200	Epoxy Coated Reinforcing Steel	146	Lb
480E0505	No. 5 Rebar Splice	10	Each
621E0520	Reset Chain Link Fence	42	Ft
621E0600	Chain Link Fence Post	1	Each

SPECIFICATIONS

1. Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal.

2. Design Specifications: AASHTO Standard Specifications for Highway Bridges 17th Edition using Working Stress Design.

DETAILS AND DIMENSIONS OF EXISTING BRIDGE

All details and dimensions of the existing bridge, contained in these plans, are based on the original construction plans and provided as information only. It is the Contractor's responsibility to inspect and verify the actual field conditions and any necessary as-built dimensions affecting the satisfactory completion of the work required for this project.

GENERAL CONSTRUCTION NOTES

1. Welder certification shall be in accordance with section 410.3.D of the Construction Specifications.

2. All structural steel parts for posts and railing shall conform to ASTM A53 Grade B. Rail post base plates shall conform to ASTM A709, Grade 36.

3. All anchor rods for railing shall conform to ASTM F3125 Grade A325. Washers shall conform to ASTM F436 and all components shall be galvanized in accordance with ASTM A153 or ASTM F2329, as applicable. The anchor rods shall have heavy hex nuts and round washers.

SCOPE OF BRIDGE WORK & SEQUENCE OF OPERATIONS

All work on this structure shall be accomplished with the traffic control shown in the plans. Alternate sequence of operations may be submitted by the Contractor for approval by the Engineer.

A portion of the bridge barrier and bridge sidewalk fence was damaged due to vehicle impact. The damaged items are to be repaired.

1. Breakout Structural Concrete to the extent shown on the plans. Trim the existing B7 bars to the length required for splicing.

2. Repair any damage to epoxy coating on salvaged and trimmed bars.

3. Place new reinforcing steel, post anchors, and splice the existing B7 bars.

4. Repair the broken out concrete section. Protect concrete as required due to temperature.

5. Remove the damaged chain-link fence post and install the new fabricated chain-link post, post connection hardware, and bottom rail section. Salvage the existing mid-rail, top rail, and post connections.

6. Replace existing stretcher bars and re-stretch and tie existing chain-link fabric.

BOLT TESTING

The certified mill test reports for all bolts and anchor rods used on the project shall include the test results for all of the testing specified in section 972.2.D of the Standard Specifications. Some of these tests are supplemental tests that must be requested at the time the bolts are ordered. It is the responsibility of the Contractor to notify the bolt supplier of these requirements.

SHOP PLANS

Shop plans shall be required as specified by Section 410.3.A of the Construction Specifications.

UTILITIES

The section of barrier to be broken out contains electrical conduit. The conduit shall be located prior to concrete removal and removal methods in the area of the conduit shall be appropriate as to not damage the conduit. The conduit contains cables and wiring for a light pole, pedestrian heads, and push buttons. The Contractor shall notify the City of Sioux Falls a minimum of 5 days before work begins so the City can disconnect the cables and wiring. No removal can begin until the wiring has been properly disconnected. Upon completion of the project the Contractor shall notify the City so the cables can be reconnected. The City contact is Heath Hoftiezer at (605)367-8601.

CONCRETE BREAKOUT

1. The existing barrier shall be broken out to the limits shown on the plans. Breakout limits shall be defined with a 3/4" deep saw-cut (unless specified otherwise in these plans), where practical, as approved by the Engineer. Reinforcing steel that is exposed and is scheduled for use in the new construction shall be cleaned and straightened to the satisfaction of the Engineer. Care shall be taken not to damage the existing reinforcing steel that is to be reused in the new construction during concrete breakout. Any reinforcing steel that is damaged during concrete breakout shall be replaced or repaired, as approved by the Engineer, by the Contractor at no cost to the Department.

2. All broken out concrete shall be disposed of by the Contractor. Any disposal of discarded material shall be in accordance with the Environmental Commitments.

3. The contract unit price per cubic yard for "Breakout Structural Concrete" shall include breaking out concrete, cleaning and straightening existing reinforcing steel, and disposal of all broken out material.

4. During concrete removal operations, no broken out concrete shall be allowed to fall on to the interstate below.

EPOXY COATING EXISTING REINFORCING STEEL

1. The existing reinforcing steel in the bridge barrier that is exposed during concrete breakout, and is to be reused, shall be epoxy coated in the field.

2. The reinforcing steel shall be abrasive blasted clean and then epoxy coated. The epoxy coating shall be inert in concrete and compatible with the coating applied to the new epoxy coated reinforcing steel. This coating shall be the epoxy touch up coating material supplied by an epoxy coating manufacturer who supplies coating material for new epoxy coated reinforcing steel. The abrasive blasted reinforcing steel shall be coated promptly and before detrimental oxidation occurs. The coating shall be allowed to cure for 24 hours or as per the manufacturer's recommendations, whichever is more stringent, before concrete can be placed. These bars shall be clean and free from all surface contaminants before coating.

3. The cost of cleaning and epoxy coating the existing reinforcing steel shall be incidental to the various bid items.

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES

FOR

102' - 0" CONTINUOUS CONCRETE BRIDGE

STR. NO. 50-219-208 229 N-288

MINNEHAHA COUNTY

S. D. DEPT. OF TRANSPORTATION

DECEMBER 2017 2 OF 9

DESIGNED BY	CK. DES. BY	DRAFTED BY	
TJM	JKI	TJM	Steve A Johnson BRIDGE ENGINEER
MINNI4YR	I4YRMA02		

MECHANICAL REBAR SPLICES

1. Mechanical splice devices will be required for the barrier repair. The mechanical rebar splices shall be in accordance with Section 480 of the Construction Specifications. In the location of existing lap splices, the mechanical splice is to be placed on the bar that is continuous into the barrier.

SPECIAL SURFACE FINISH

1. Special surface finish will be required as shown in Section 460L.2.

INSTALLATION ON CHAIN LINK POST ANCHORS

1. All costs associated with placement of the chain link post anchors including embedded nuts and washers, labor, equipment, and materials necessary to complete the construction outlined by these plans shall be included in the contract unit price for “Class A45 Concrete, Bridge Repair”.

CONCRETE PATCHING MATERIAL COLD WEATHER PROTECTION REQUIREMENTS

Concrete patching material shall conform to the following requirements unless the manufacturer's requirements are more stringent:

1. Concrete Patching Material Mix: Maximum temperature of mixing water: 160 °F, maximum temperature of aggregates: 100 °F, and aggregates shall be free of frozen lumps, ice or snow.

2. The surface temperature or anything which will come into contact with the fresh concrete patching material shall be above freezing prior to placement, including forms, reinforcing steel, and adjacent concrete.

3. The minimum concrete patching material temperature at placement shall be 50 °F.

4. The minimum concrete patching material temperature shall be 50 °F. for the first 72 hours and 40 °F. for the next 48 hours or manufacturer’s recommendations. Concrete patching material temperatures below 35 °F. during the protection period shall be cause for rejection.

5. The maximum concrete patching material temperature during the protection period shall be 100 °F.

6. At the end of the protection period, the concrete patching material temperature shall not be permitted to fall more than 40 °F. for each 24 hour period.

7. Enclosures for the protection of the concrete patching material must be in place before any part of the concrete patching material falls below 50 °F.

8. Enclosures shall be capable of maintaining the specified temperature and permit free circulation of artificial heat.

9. No artificial heat source shall be used which uses an open flame or introduces carbon dioxide into the enclosure where it can come into contact with fresh concrete patching material.

10. The Contractor shall provide remote reading indoor/outdoor type thermometers for monitoring the concrete patching material temperature during the protection period. The number and spacing of thermometers shall be determined by the Engineer. Thermometers shall generally be installed to measure the internal concrete patching material temperature at a location approximately one inch from the exterior surface of the concrete patching material.

11. During the protection period, the Contractor shall be responsible for monitoring the enclosure at intervals acceptable to the Engineer. The Contractor shall monitor concrete patching material temperature, humidity (if required), and the structural integrity of the enclosure.

12. Falsework shall remain in place until the end of the protection period.

13. The Contractor shall submit a Cold Weather Protection Plan to the Engineer for approval, a minimum of 14 days prior to any concrete patching material placement. Such a plan shall contain, at a minimum, information on the number and type of heat source to be used; a sketch detailing the enclosure to be used, including information on the enclosure materials; and any other information that is appropriate.

14. All costs associated with housing and heating of the concrete patching material repairs including any incidentals, labor, equipment and materials necessary to complete the construction outlined by these plans shall be included in the contract unit price per cubic yard for “Housing and Heating Concrete”. Payment shall be for the plan quantity shown in the Estimate of Quantities.

CHAIN LINK FENCE POST

1. The post and baseplate shall be painted in accordance with Section 411 of the South Dakota Standard Specifications and the color shall be an approved green (Federal Standard 595B Color 24108).

2. The chain link fence post shall not be installed until the supporting concrete reaches a minimum compressive strength of 1200 psi or has cured for 24 hours whichever is more stringent.

3. The costs of structural steel, welding, weld inspection, and painting shall be incidental to the contract unit price per foot for “Chain Link Fence Post”.

4. All anchor bolts shall be tightened to a torque of 120 ft.-lbs. (approximated without the use of a calibrated torque wrench).

CHAIN LINK FENCE RESET

1. The chain link fence post shall be installed vertically.

2. A green (Federal Standard 595B Color 24108) thermally extruded polyvinyl coating shall be applied to the wire ties, rail, and all miscellaneous hardware.

3. The item “Reset Chain Link Fence” shall be paid for by the linear foot. This payment shall be full compensation for furnishing all material, labor, tools and equipment necessary or incidental to the resetting the chain link fence including: the post installation, nuts and washer for connection to the concrete barrier, grout for leveling the base plate, the bottom rail, wire ties, miscellaneous hardware, and painting to satisfactorily complete this work.

NOTES (CONTINUED)

FOR

102' - 0" CONTINUOUS CONCRETE BRIDGE

STR. NO. 50-219-208 229 N-288

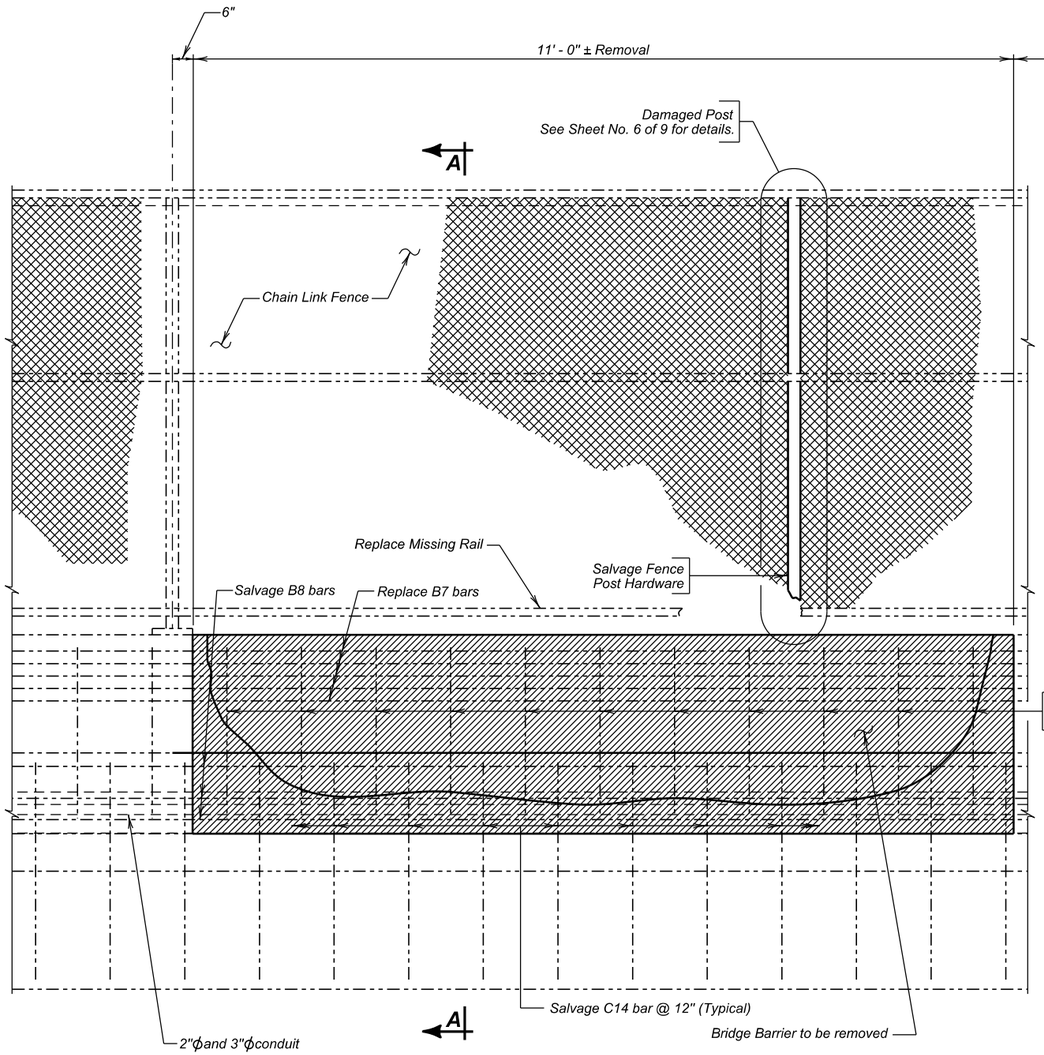
MINNEHAHA COUNTY

S. D. DEPT. OF TRANSPORTATION

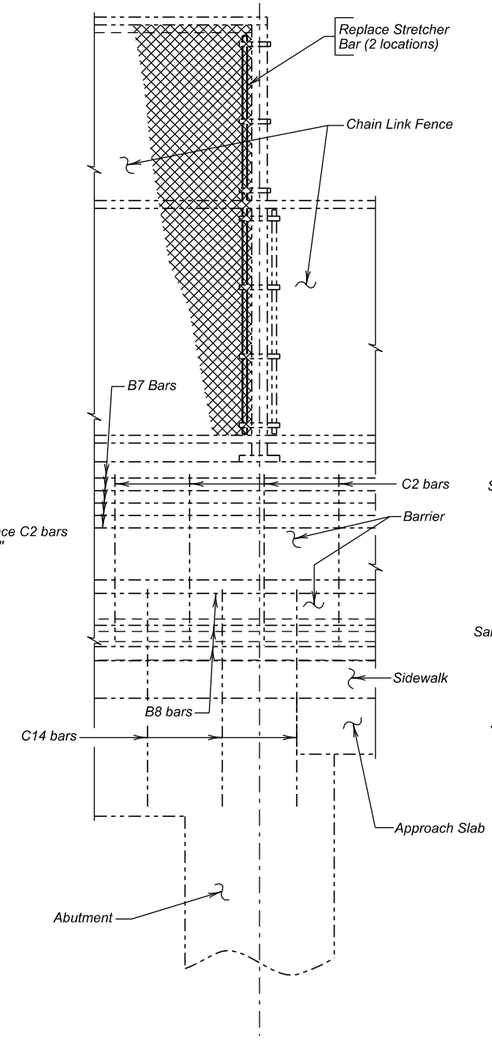
DECEMBER 2017

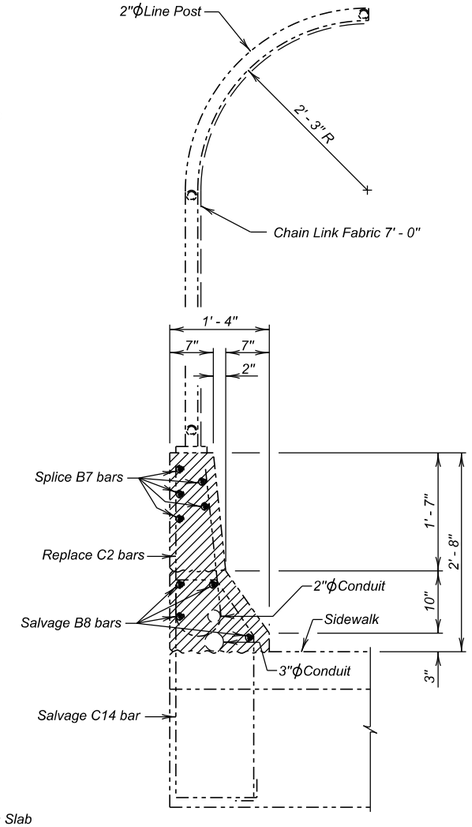
DESIGNED BY	CK. DES. BY	DRAFTED BY	
TJM	JKI	TJM	Steven A. Johnson BRIDGE ENGINEER
MINN14YR	I4YRMA03		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	229N-288	15	20



ELEVATION





SECTION A - A

LEGEND:

Removal Extents

BRIDGE BARRIER DETAILS

FOR

102' - 0" CONTINUOUS CONCRETE BRIDGE

2 - 24' - 0" ROADWAY
OVER I-229 (10TH ST.)
STR. NO. 50-219-208

0° 43' 43" R.H.F. SKEW
SEC. 15-T101N-R49W
229 N-288

MINNEHAHA COUNTY
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2017

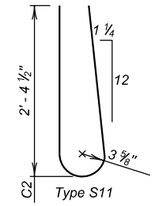
4 OF 9

DESIGNED BY	CK. DES. BY	DRAFTED BY	
TJM	JKI	KR	Steve A. Johnson BRIDGE ENGINEER
MINNI4YR	I4YRRA04		

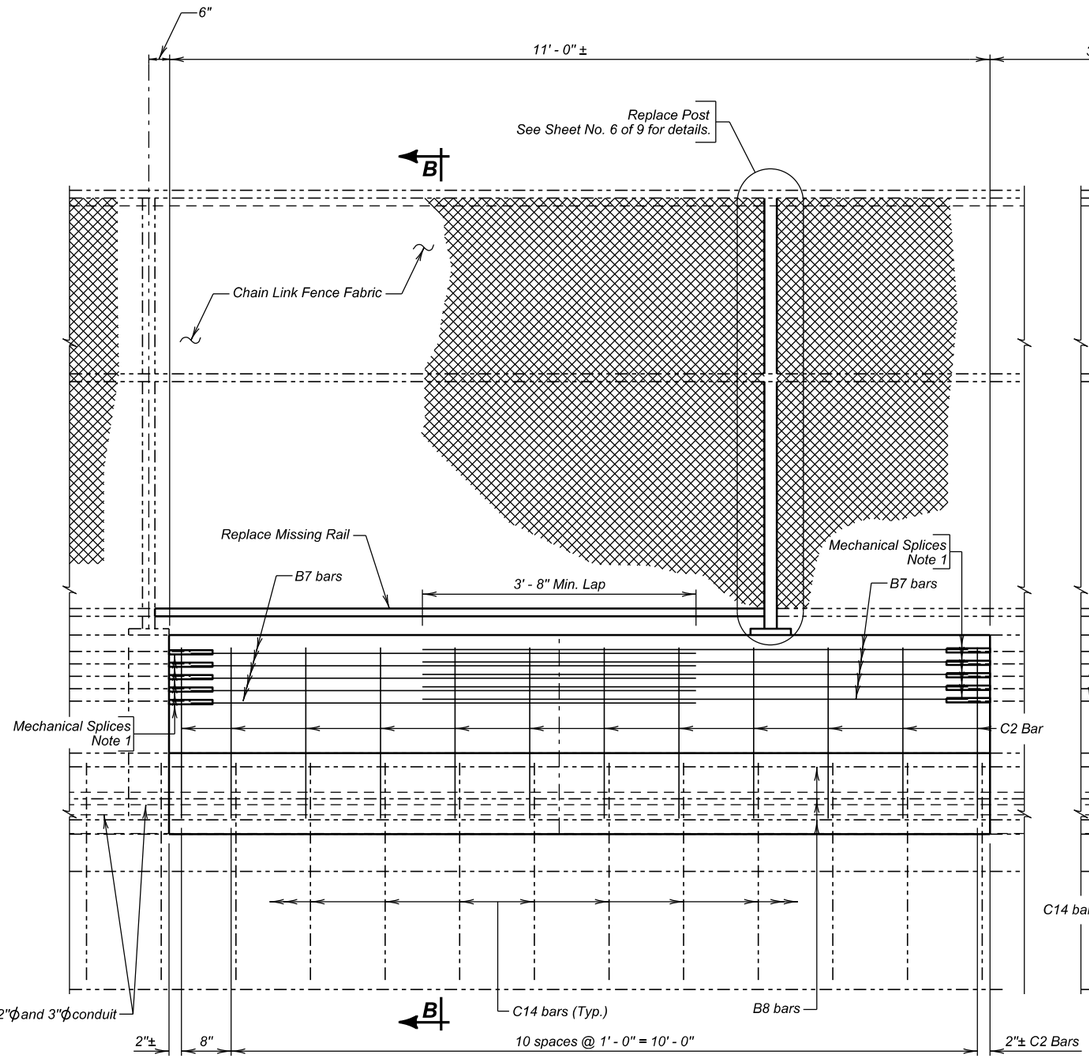
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	229N-288	16	20

REINFORCING SCHEDULE
(For NB Bridge Barrier)

Mk.	No.	Size	Length	Type
B7	10	5	7' - 4"	Str.
C2	13	5	5' - 1"	S11



NOTE-
All dimensions are out to out of bars.



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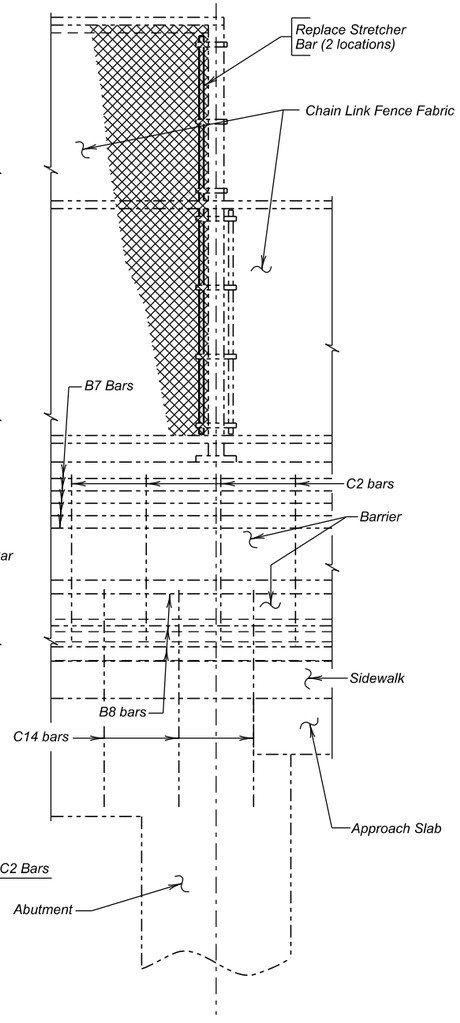
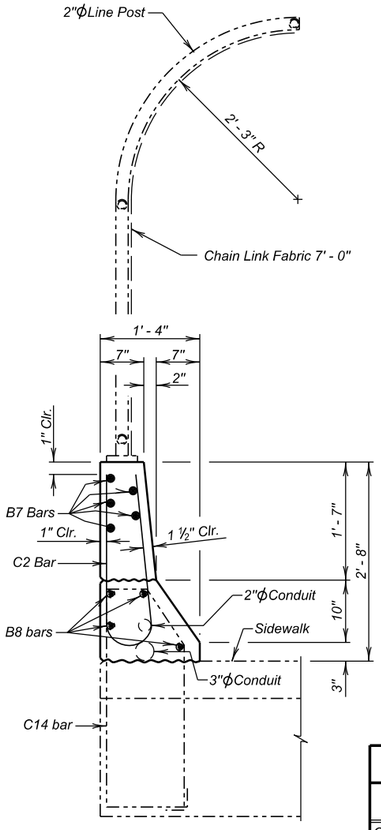




SECTION B - B
(Note 2)

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY Bent No. X
Class A45 Concrete, Bridge Repair	Cu. Yd.	0.9
Epoxy Coated Reinforcing Steel	Lb.	146
Breakout Structural Concrete	Cu. Yd.	0.9
Special Surface Finish	Sq. Ft.	69
Housing and Heating Concrete	Cu. Yd.	0.9
#5 Rebar Splice	Each	10

Note 1:
In locations of existing lab splices, ensure the Mechanical Splices is placed on the B7 that is continuos into the remaining barrier section. If the continuous bar can not be determined consult the engineer.

Note 2:
Minimum cover at the splice locations can be reduced by ¼", transition bar back to standard cover listed beyond the splice.

BRIDGE BARRIER DETAILS (CONTINUED)

FOR

102' - 0" CONTINUOUS CONCRETE BRIDGE

2 - 24' - 0" ROADWAY
OVER I-229 (10TH ST.)
STR. NO. 50-219-208

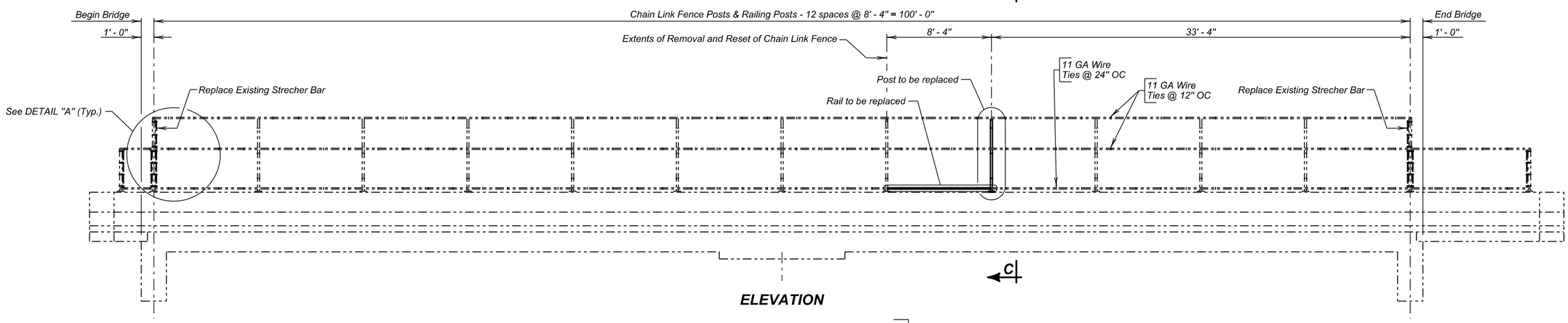
0° 43' 43" R.H.F SKEW
SEC. 15-T101N-R49W
229 N-288

MINNEHAHA COUNTY
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2017

5 OF 9

DESIGNED BY	CK. DES. BY	DRAFTED BY	
TJM	JKI	KR	Steve A Johnson BRIDGE ENGINEER
MINNI4YR	I4YRRA05		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	229N-288	17	20



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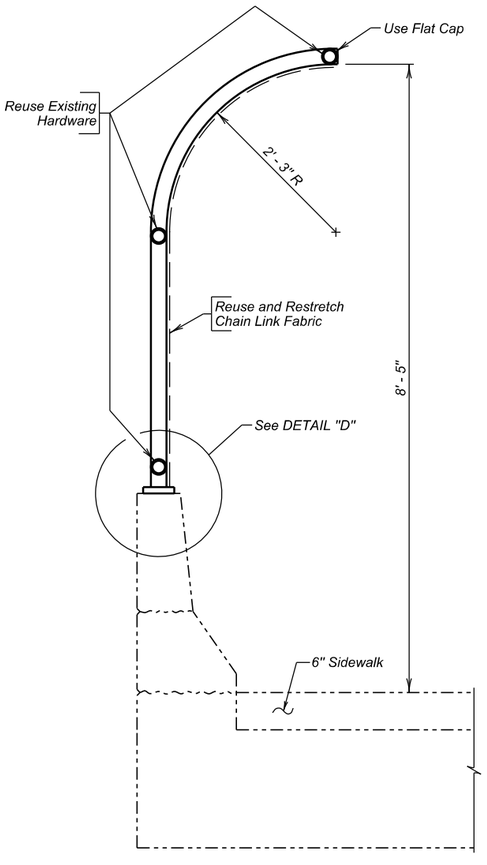
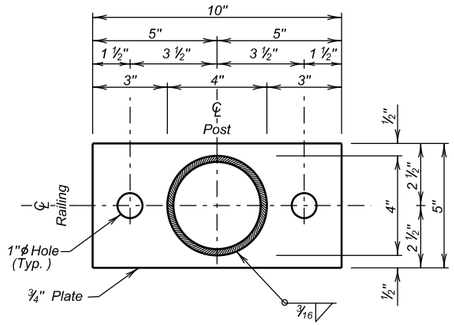
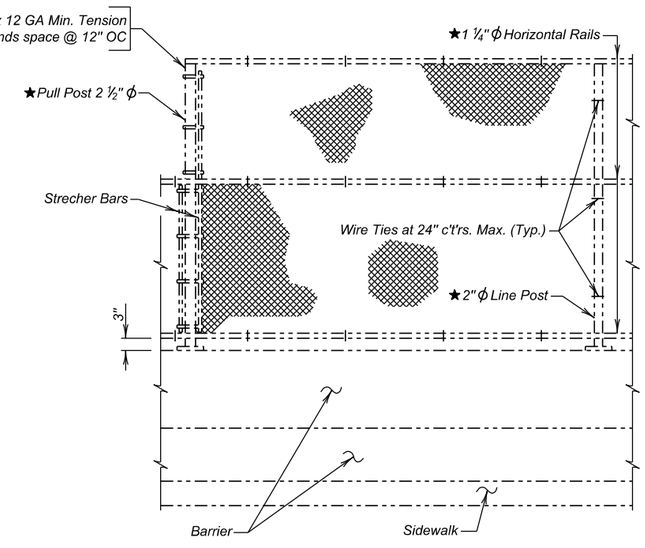


SECTION C - C

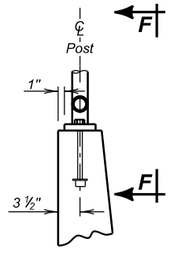


SECTION H - H



DETAIL "A"

★NOTE:
Diameter of pipe shown is the nominal diameter. All pipe shall be standard weight (Schedule 40) pipe.



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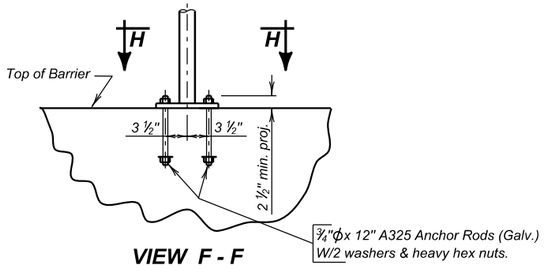


VIEW F - F

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Remove Chain Link Fence for Reset	Ft.	42
Reset Chain Link Fence	Ft.	42
Chain Link Fence Post	Each	1

BARRIER CURB RAILING AND CHAIN LINK FENCE DETAILS
FOR
102' - 0" CONTINUOUS CONCRETE BRIDGE

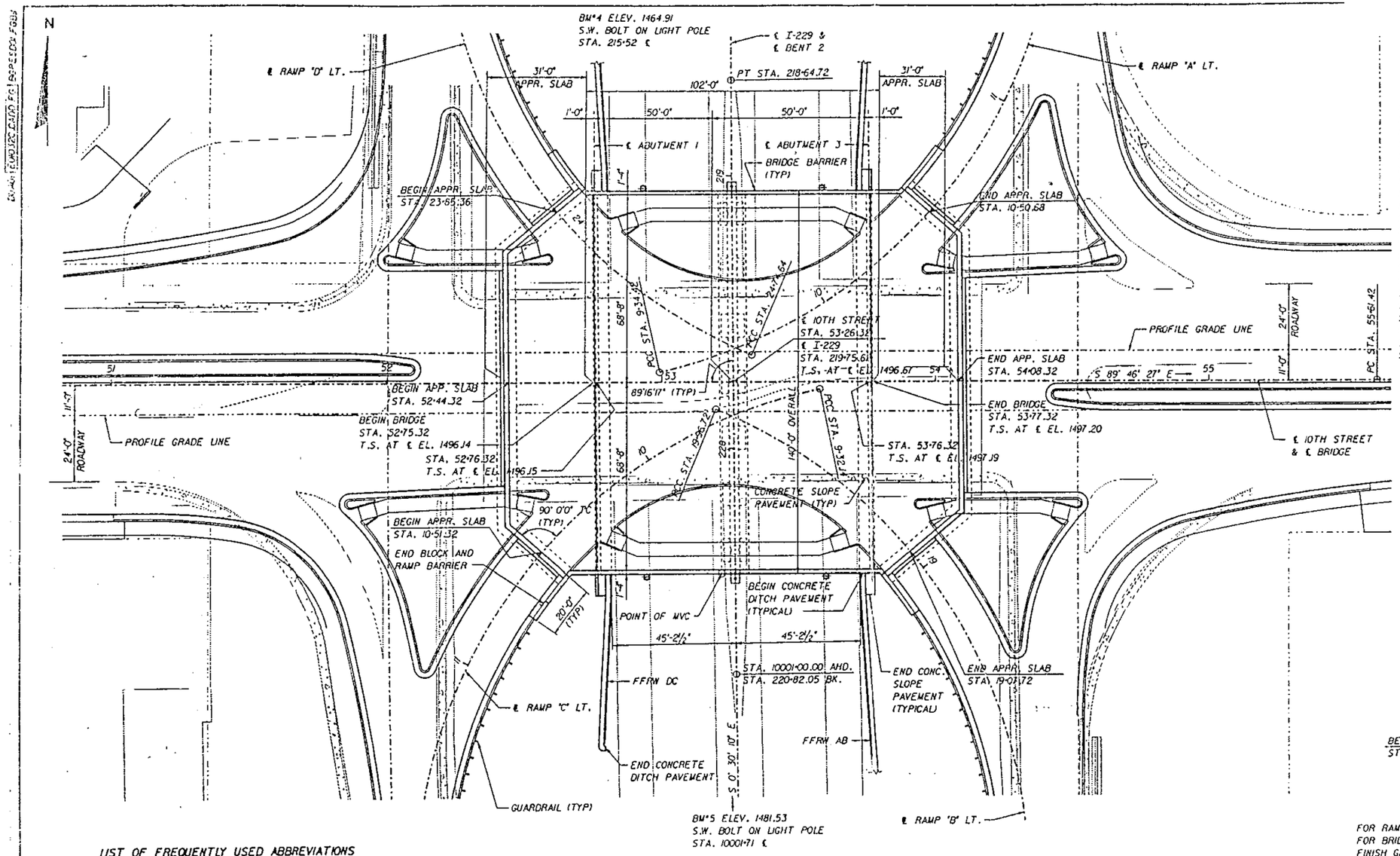
2 - 24' - 0" ROADWAY
OVER I-229 (10TH ST.)
STR. NO. 50-219-208

0° 43' 43" R.H.F. SKEW
SEC. 15-T101N-R49W
229 N-288

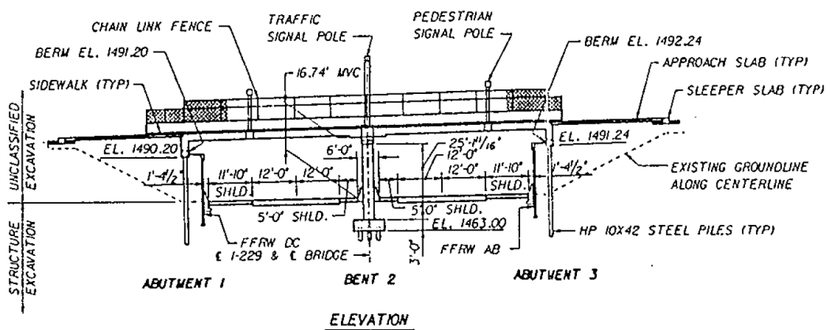
MINNEHAHA COUNTY
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2017

DESIGNED BY	CK. DES. BY	DRAFTED BY	
TJM	JKI	KR	Steve A Johnson BRIDGE ENGINEER
MINNI4YR	I4YRRA06		

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	229N-288	18	20



PLAN

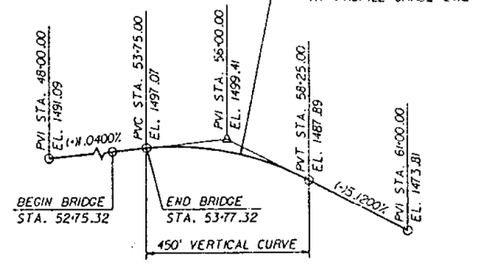


ELEVATION

UST OF FREQUENTLY USED ABBREVIATIONS

AHD	AHEAD
BK	BACK
CL	CLEAR
COV	COVER
FFRW	FRONT FACE OF RETAINING WALL
LT	LEFT
MVC	MINIMUM VERTICAL CLEARANCE
RT	RIGHT
SHLD	SHOULDER
TC	TANGENT TO CURVE AT INTERSECTION POINT
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE

INDEX OF BRIDGE SHEETS



VERTICAL ALIGNMENT - 10TH. STREET

FOR RAMP HORIZONTAL AND VERTICAL ALIGNMENTS, SEE ROADWAY PLANS.
FOR BRIDGE DECK AND APPROACH SLAB ELEVATIONS, SEE SUPERSTRUCTURE FINISH GRADE ELEVATIONS ON SHEET 9 OF 21.

ORIGINAL CONSTRUCTION PLANS

GENERAL DRAWING
FOR
102'-0" CONTINUOUS CONCRETE BRIDGE
2-24'-0" RDWY 2-5'-0" SIDEWALKS SEC. 15-T10IN-R49W
OVER I-229 (10TH ST.) 0°43'43" R.H.F. SKEW
STA. 52+75.32 TO STA. 53+77.32 IM-229-2(49)6
STR. NO. 50-219-208 HS25-44
PCEMS 1229 (& ALT.)
MINNEHAHA COUNTY
S.D. DEPT. OF TRANSPORTATION
NOVEMBER 1994

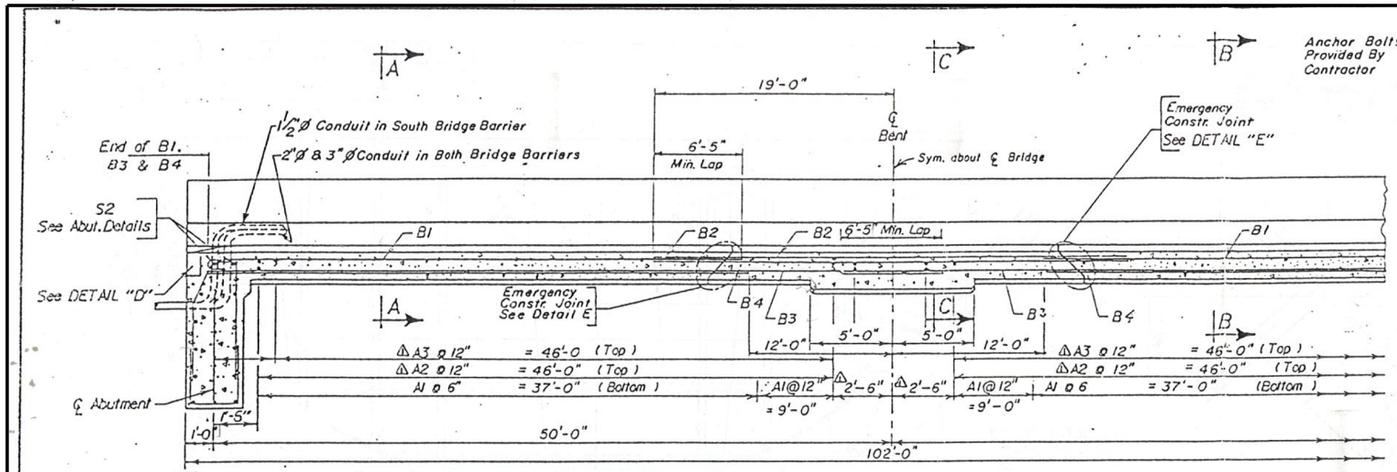
7 OF 9

-X220-

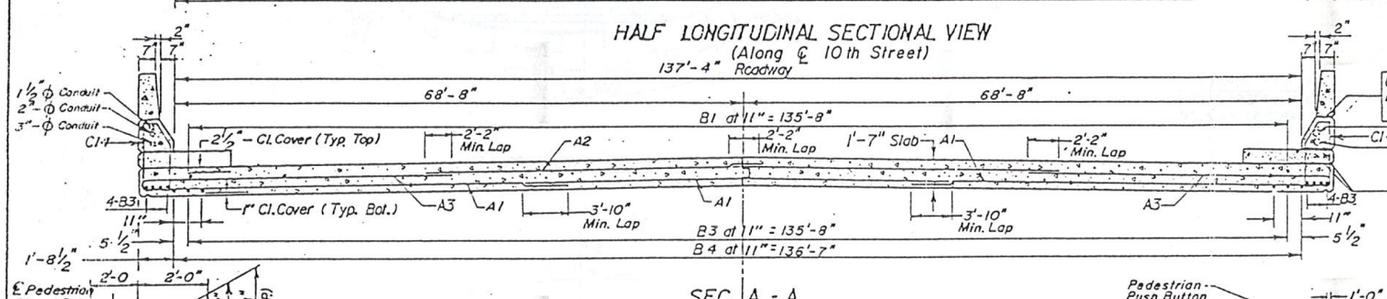
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
MSE	KAC	SLW	BRIDGE ENGINEER

Greiner
Greiner, Inc.
Engineers, Architects and Planners

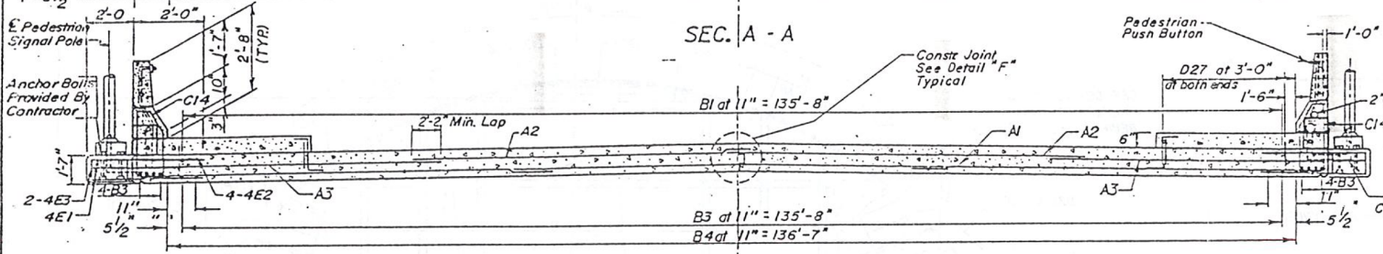
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	229N-288	19	20



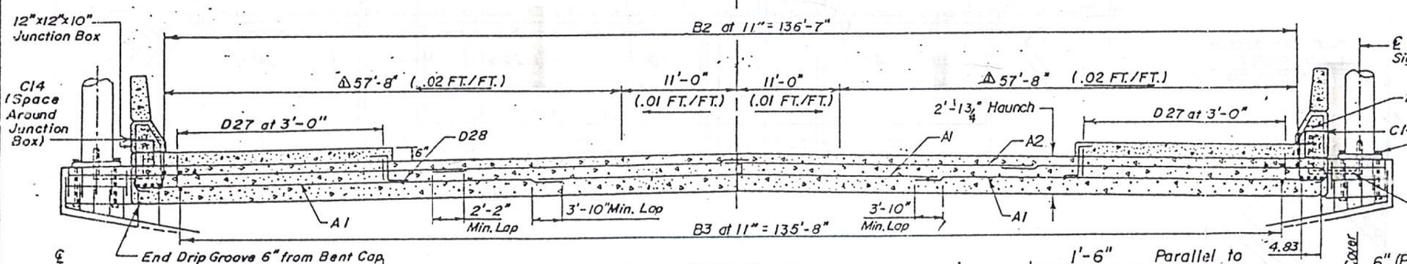
HALF LONGITUDINAL SECTIONAL VIEW
(Along ℄ 10th Street)



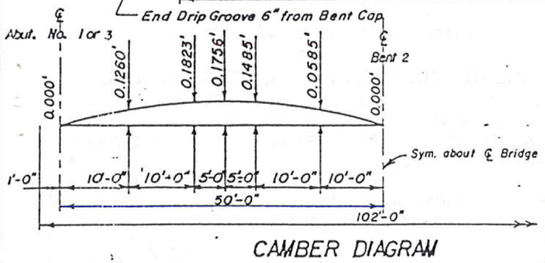
SEC. A - A



SEC. B - B

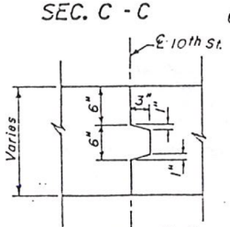


CAMBER DIAGRAM

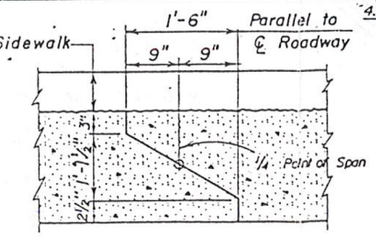


Camber is calculated for dead load deflection plus plastic flow and has been added to the proposed grade elevations at the respective stations to establish the elevations of the top of the finished roadway slab.

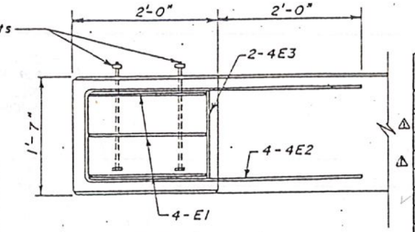
SEC. C - C



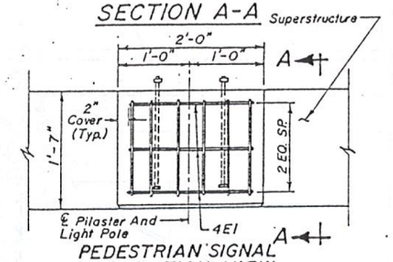
DETAIL "F"



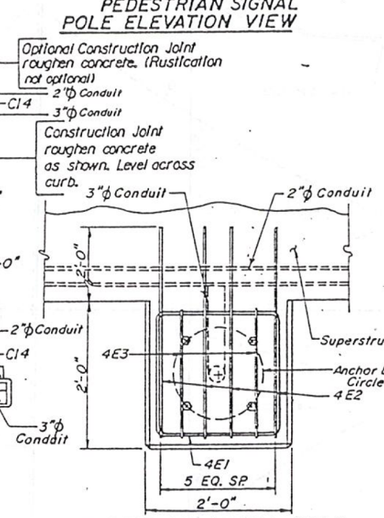
DETAIL "E"



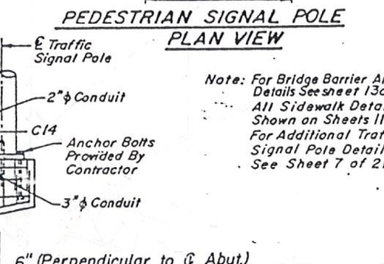
SECTION A-A Superstructure



PEDESTRIAN SIGNAL POLE ELEVATION VIEW

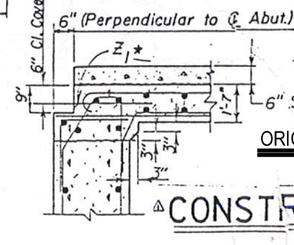


PEDESTRIAN SIGNAL POLE PLAN VIEW



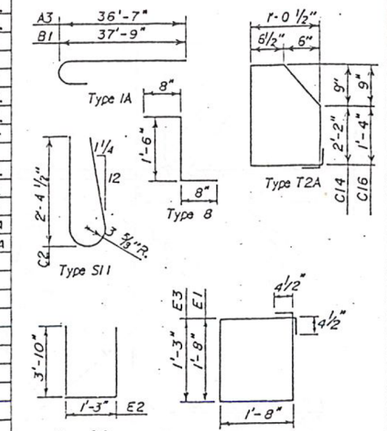
Note: For Bridge Barrier And Conduit Details See sheet 13 of 21. All Sidewalk Details Shown on Sheets 11 and 12 of 21. For Additional Traffic Signal Pole Details See Sheet 7 of 21.

DETAIL "D"



REINFORCING SCHEDULE

	Mk.	No.	Size	Length	Type	Bending Details
Δ	A1	510	6	49'-2"	Str.	
Δ	A2	192	4	36'-7"	Str.	
Δ	A3	192	4	37'-1"	1A	
	B1	296	10	39'-2"	1A	
	B2	300	10	38'-0"	Str.	
	B3	314	10	53'-7"	Str.	
	B4	300	10	38'-4	Str.	
#	B7	30	5	40'-5"	Str.	
#	B8	18	4	40'-3	Str.	
	C2	240	5	5'-1"	S11	
	C14	204	5	8'-7"	T2A	
	C16	36	5	6'-11"	T2A	
	D27	512	4	1'-0"	Str.	
	D28	284	4	2'-10"	8	
	E1	12	4	7'-5"	T2	
	E2	16	4	8'-11"	S10	
	E3	8	4	6'-7"	T2	
★	Z1	370	7	4'-0"	Str.	



NOTES
All reinforcing steel shall be epoxy coated.
* Bend in field as necessary to fit
★ See Sheet 16 of 21 for location of Z1 bars.
All dimensions are out to out of bars.
The Contractor will be allowed to drill and epoxy in Bars D27, but no sooner than 36 hours after deck concrete is placed.

B2 bars were placed @ 5 1/2" (verified by Dave L. 9-11-95)

ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY
*	Class A45 Concrete, Bridge Deck	Cu. Yd.	875.7
Δ	Epoxy Coated Reinforcing Steel	Lb.	277,345

* Class A45 Concrete Includes 1.0 C.Y. for Pedestrian Signal Supports

SUPERSTRUCTURE DETAILS FOR

102'-0" CONTINUOUS CONCRETE BRIDGE

2-24'-0" RDWY 2-5'-0" SIDEWALKS SEC. 15-T101N-R49W
OVER I-229 (10TH ST.) 0°-43-43" R.H.F. SKEW
STA. 52+75.32 TO STA. 53+77.32 IM-229-2(49)6
STR. NO. 50-219-208 HS 25-44 (& ALT.)

MINNEHAHA COUNTY
S.D. DEPT. OF TRANSPORTATION
NOVEMBER 1994

ORIGINAL CONSTRUCTION PLANS

Δ CONSTRUCTION CHANGE

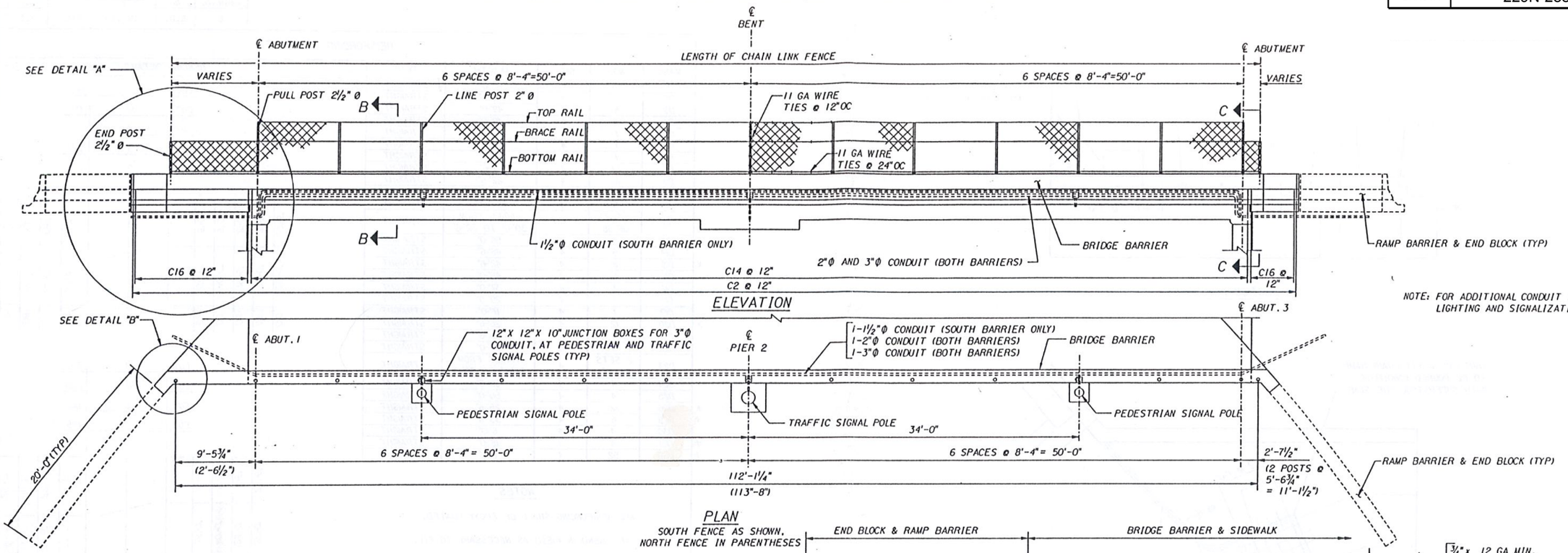
Δ Revised 4-4-95 by S.D.D.O.T. Office of Bridge Design

8 OF 9

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
SLM	JRL	AZF	BRIDGE ENGINEER

STANDARDS BSTDJI3

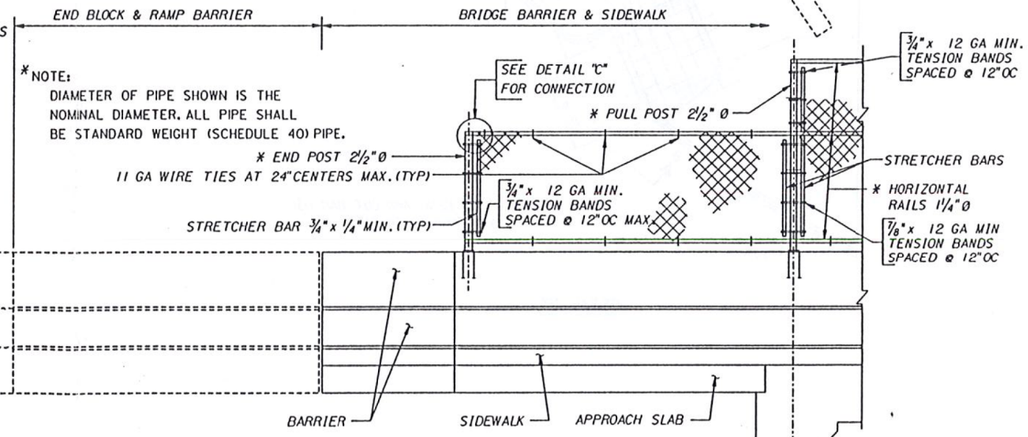
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	229N-288	20	20



NOTE: FOR ADDITIONAL CONDUIT DETAILS, SEE LIGHTING AND SIGNALIZATION PLANS.

PLAN

SOUTH FENCE AS SHOWN, NORTH FENCE IN PARENTHESES

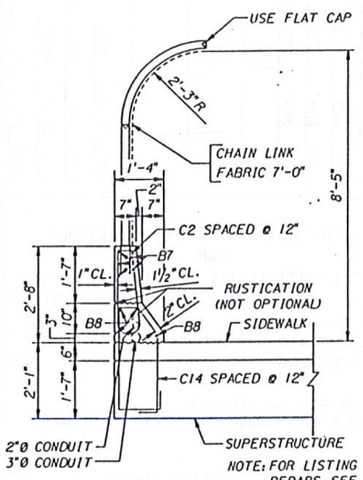


DETAIL "A"

ESTIMATED QUANTITIES

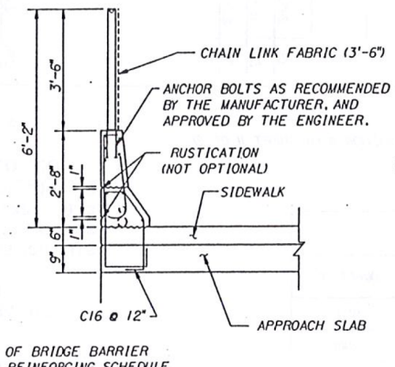
ITEM	UNIT	QUANTITY
BRIDGE SIDEWALK CHAIN LINK FENCE	L.F.	225.8
CLASS A45 CONCRETE. BRIDGE DECK	C.Y.	19.5
EPOXY COATED REINF. STEEL	L.B.	*

*INCLUDED IN SUPERSTRUCTURE QUANTITIES ON SHEET 10 OF 21.

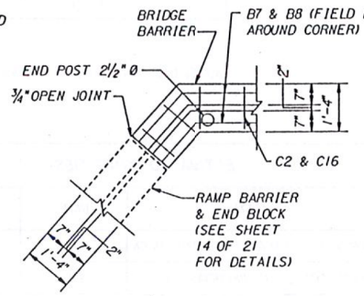


SEC B-B

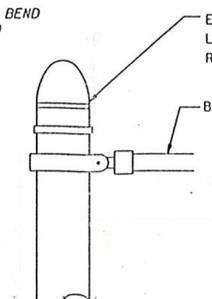
NOTE: FOR LISTING OF BRIDGE BARRIER REBARS, SEE REINFORCING SCHEDULE SHEET NO. 10 OF 21.



SEC C-C



DETAIL B (TYP.)



NOTE:
THE DETAIL SHOWN IS ONLY ONE POSSIBLE DETAIL. USE THE DETAIL RECOMMENDED BY THE MANUFACTURER AND APPROVED BY THE ENGINEER.

DETAIL "C"

ORIGINAL CONSTRUCTION PLANS

BRIDGE BARRIER AND CHAIN LINK FENCE DETAILS

FOR

102'-0" CONTINUOUS CONCRETE BRIDGE

2-24'-0" RDWY 2-5'-0" SIDEWALKS — SEC. 15-T10IN-R49W
OVER I-229 (10TH ST.) — 0° 43' 43" R.H.F. SKEW
STA. 52+75.32 TO STA. 53+77.32 — IM-229-2(49)6
STR. NO. 50-219-208 — HS25-44 (& ALT.)

MINNEHAHA COUNTY
S.D. DEPT. OF TRANSPORTATION
NOVEMBER 1994

9 OF 9

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
M. S. E.	J. GEILE	T. J. S.	BRIDGE ENGINEER

SDDOT/FE0103/10TH/FENCE-SDAKOTA